ENGAGING FAMILIES IN ENVIRONMENTAL EDUCATION: HOW ACTION, CRITICAL THINKING, AND SOCIAL LEARNING CAN FOSTER CHANGE

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Abstract

Families are important drivers of sustainability yet little research has studied how to engage them in environmental education. Therefore, a family environmental education program based on action, critical thinking, and social learning was developed and piloted that provided five households (17 participants in total) with the opportunity to pursue environmentally responsible change in their lives throughout a five-month timeframe. Participants were asked to (a) set and pursue action-oriented, environmentally responsible goals with their family members, (b) analyze their daily (in)actions (e.g., through photographs, family and multihousehold discussions, and journal writing), and (c) locate resources that would engage them in environmental learning and action. Data collection methods included family interviews, multihousehold focus groups, and personal journals. The data were coded using inductive analysis and the research was framed within a participatory action research methodology.

The research findings indicate that involvement in the program led participants to engage in environmentally responsible action and helped them to identify areas that they wished to take action on in the future. This was particularly due to their participation with and alongside family members and other participants, as being with others who felt the environment was important was considered to be not only motivating, but valuable and enjoyable as well. Furthermore, providing participants with the opportunity to reflect upon their actions, share their ideas and knowledge with others, and discuss various sustainability-related topics prompted critical thinking and led them to identify what they felt to be the biggest barriers and supports to sustainability. Lastly, both adult and youth participants expressed that they felt formal education has an important role to play in supporting sustainability; however, they also noted that there is much room for improvement in the current educational system if it is to engage students in environmental learning and action.

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Finally, I would like to thank my remarkable participants. Seeing what a positive difference you are all making in the world is truly inspiring. I feel so fortunate to have had the opportunity to work with and learn from all of you.

Dedication

To my friend, Amanda Unrau, who asked the questions that would eventually lead me to pursue this research.

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Preface

I was born and raised in Saskatoon and can happily say that I still call it home. My fondest memories are of summers exploring the riverbank at my family's farm near Aberdeen, riding horses and picking Saskatoon berries at a family friend's acreage near Clavet, and swimming and building forts at my family's cabin at Lac La Ronge. Winters were spent skiing on the flat plains of Saskatchewan and down the slopes of the Rockies, skating both indoors and out, and having snowball fights and shinny games whenever the opportunities arose. I've come back to these memories recently with, not only a new appreciation for how fortunate I am to have had these exceptional experiences, but also with a better understanding of how all of them revolved around both family and the environment.

Beyond these experiences, what I enjoyed the most growing up was school. It challenged me and never stayed the same; in fact, the open-endedness and infiniteness of education still fills me with excitement. However, my enthusiasm for school started to taper off as I neared the end of my high school education. I had spent the first half of my Grade 11 year in Saskatoon's Outdoor School program, which made it difficult to return to the "regular" school system. Classes seemed to lack the same kind of relevance and meaning that Outdoor School had offered and I began to realize that education could provide so much more than what I had thought previously.

The restlessness that accompanied me through the last year and a half of my high school education led me to pack my bags and live abroad following graduation. Thinking at that time that I might never return to Canada until I had traveled every inch of the world, I was surprised to find that home started to call me back. I returned to Saskatoon with my head filled with "worldly" knowledge and I began at the University of Saskatchewan the month after arriving home from Germany. Math and the sciences tugged at me as options because I had excelled in them in high school but, in the end, studio art and art history held my attention most because they challenged me and reinvigorated my passion for learning.

What I learnt during my Bachelor degree (both in and outside of the classroom) was like traveling from the comfort of my own home. The differences inside of each person meant that no one understood, responded to, or explored art (let alone the world) in the same way. Each person I met, I considered a teacher and a student; as the diversity of our views came together, we

learned not only about art, but politics, philosophy, psychology, anthropology, history, science, and the environment. University also offered me the opportunity to get involved in politics and activism. Despite requiring "extra" time and effort, the number of meaningful activities that I participated in taught me about responsible, active citizenship. Ultimately, community involvement offered me something that education in the classroom did not.

One of the most significant realizations that I came to while in university was that each and every one of us has an impact on the world. I began to understand that my decisions affect people, species, ecosystems, ideas, situations, knowledge, etc. Becoming aware of the personal and collective ability of people to effect change made me feel that I needed to take responsibility for my actions. Not only that, but it led me to look for ways to include others in environmental change. Although I still struggle with what responsible living really is and what changes are needed most, I guess that is part of the journey I have set out for myself by pursuing the area of environmental education.

So why am I pursuing this particular research topic? Because the variety of relationships and experiences that I have been fortunate enough to have had in my life led me here. My interactions with multiple people, places, and ideas have helped me to better understand the complexities, challenges, and opportunities we may face as we attempt to transition to more sustainable ways of living and being on the earth. I can only hope to apply what I know and have learned to make a positive impact on the world and on others. This research is one of those attempts.

Chapter 1
Introduction to the Study

The current "sustainability movement" has already opened up many paths for environmental change and activism, but the more specific field of environmental education (EE) is crucial for the advancement and development of environmental research and programs that equip people with the abilities to improve and solve environmental issues (North American Association for Environmental Education (NAAEE), 2009). This particular research study is focused on the ways in which environmental education can be used to engage Canadian families in sustainability through action, critical thinking, and social learning.

Participants from five purposively sampled households in Saskatoon were asked to set action-based goals, both personal and shared, that they felt would engage them in activities they considered to be environmentally responsible. I then examined: a) what participants identified as the main barriers and supports to sustainability; b) whether participants achieved their action goals; c) whether the process of being involved in the study encouraged participants to think critically about their actions and lifestyles, and d) how participants were influenced by participating in collective contexts (with family and community). The research included educators (as well as students) in the hopes that insights regarding education would also emerge throughout the study. Given the focus on examining the role of action, critical thinking, and social learning, participatory action research (PAR) was selected as the methodology to frame the data collection and analysis with the, "objective of producing both useful knowledge and action as well as consciousness raising" (Schwandt, 2001, p. 187).

I have premised this research on the belief that motivated, interested, and action-orientated citizens are needed in order to create and maintain sustainable communities. As Roseland (2009) states, global sustainability requires sustainable communities. Therefore, it is important to examine the role that individuals, families, and communities can play in driving environmentally and socially responsible change.

Research Significance

There is a need to realize that our present way of living is unsustainable, "and that now, more than ever, is the time for transition towards more sustainable systems" (Wals, 2009, p. 67).

In other words, as Berkowitz, Ford, and Brewer (2005) state: "As human capacity to alter the environment reaches unprecedented levels, the urgency of fostering environmental citizenship in all people has never been greater" (p. 262). Therefore, efforts are needed that, "actively assist people to see themselves as environmentally concerned" (McKenzie-Mohr & Smith, 1999, p. 57), as well as encourage people to act in environmentally responsible ways. As a result, the role of this study was to examine whether an environmental education program focused on action, critical thinking, and social learning could increase participants' efforts in sustainability.

Although some may insist that the problems we are facing are too enormous to wait around for education to work (Braus, 2004), this should be challenged because, as those who support education argue, "we can't afford *not* to educate because we need people to care enough to protect the environment" (Braus, 2004, p. 177). Of course, this is not to say that all educational approaches foster the types of learning needed to address sustainability-related issues, only that there is great potential for education to do so (Greenwood & McKenzie, 2009; Stevenson, 2002; Tilbury & Wortman, 2008). The field of environmental education has a 40-plus year history of undertaking education that is based on learner-centered techniques, the development of lifelong skills and action, and adaptable programming that focuses on instruction and support that connects with learners' everyday lives (Simmons et al., 2004). This study makes a contribution to the field, both empirically and theoretically, by revealing the potential of environmental education to engage families in sustainability through action, critical thinking, and social learning.

As researchers begin to focus more on the significance of social learning (Kincheloe, 2004; Lave, 2009; Lave & Wenger, 1991; Wals, 2007; Wenger, 2009), this is another area in which this study makes an important contribution to the field of environmental education. As Greenwood and McKenzie (2009) discuss, "all experience and learning exists in relationship with others, and environmental educators are questioning the nature of these relationships in a variety of socioecological contexts" (p. 11). Therefore, using this study to examine how social learning and collective interaction affect participants' participation with people, actions, and thinking builds on this emerging theme in environmental education.

Although there has been research of great significance done in the area of social learning, there has been very little empirical work done on how to engage families in environmental action and learning (Payne, 2005a). I hope that this study helps to address this current gap in the

research, as further research examining environmental involvement at the level of family could prove to offer some very important insights on how "ecopraxis" within the home is established and maintained (Payne, 2005b, 2010). Furthermore, it has become clear that efforts of environmental and social responsibility must go beyond the individual; sustainability requires, "co-operation between a number of different groups operating at a number of different levels" (Dyball, Brown, & Keen, 2007, p. 181). Therefore, I highlight in this study how families, both as individual units and collective communities, can be drivers of sustainability.

Beyond the scope of simply advancing knowledge and the research literature, I wished to use this study to engage the research participants in environmental action, thinking, and learning. There were many benefits to conducting research in this way. For example, the participants had opportunities to discuss and reflect on environmental and social issues *and* solutions, engage in meaningful interactions with family and community members, become part of a supportive community, and find ways to get involved in sustainability-related action at both personal and community levels. Not only that, but the participants drew on the insights and experiences of other participants to inform what they learned and engaged in, which challenged the assumption that the best solutions and answers regarding sustainability come from experts alone (Payne, 2005b; Saul, 2001). Ultimately, research can play a role in fostering an active, environmentally responsible, critically thinking citizenry--people who develop the competencies, understandings, and communities needed to take action--which can have an enormous effect on the way people interact with(in) the world (Tilbury & Wortman, 2008).

Our participation in everyday life determines both the course of our own lives, as well as the present and future circumstances for many other people, species, and the world. For this reason, it is important for us to act, think, and participate with others in ways that do not undermine the ecological processes that support life, health, and wellbeing. Therefore, enhancing learning opportunities and encouraging practices that work towards sustainability (as was done during this study) have the potential of reducing the damaging effects of water and air pollution, loss of biodiversity, species extinction, habitat loss, soil degradation, climate change, poor waste and resource management, overuse and overconsumption of resources, energy inefficiencies, disease and other health problems, and the production, use, and disposal of toxic products, which all, in turn, lead to social justice abuses and environmental degradation. In other words, despite the overwhelming complexity of sustainability-related issues, I have based this research on the

premise that people have the ability to turn some of this around. As Albert Einstein laid out in his third rule of work: “In the middle of difficulty lies opportunity.” We have got a lot of work to do though, so let’s get started.

Objectives

For this research, a Saskatoon-based family environmental education program was developed, piloted, and analyzed. The objectives were to engage the participants in sustainability through action, critical thinking, and social learning (using a participatory action research framework), as well as investigate the following questions:

- How did participants understand sustainability and environmental responsibility (e.g., how did they define these terms and what did they identify as the biggest challenges, barriers, supports, and opportunities to sustainability)?

- What actions did participants change or pursue? What did they learn, achieve, and feel challenged or supported by while attempting to act? Did participants think they would be able to maintain the actions they started during the research and/or pursue other actions once the study was over?

- Did critical thinking occur during the research? If so, what did participants reflect upon or think critically about during the study?

- How did social learning and collective interaction with family and community members influence participants? What were the dynamics of these collectives during the study (e.g., supportive, motivating, etc.)?

- By including educators and students in the study, what insights came forward about formal education?

The results of the research provide an in-depth examination of participants' (a) understandings of sustainability, (b) participation in action, (c) engagement in critical thinking, (d) social learning and interaction, and (e) perspectives on formal education.

Thesis Layout

The sections that follow include a literature review (Chapter 2), a description of the research methodology and procedures (Chapter 3), the study results (Chapter 4), a discussion of the findings (Chapter 5), the references, and the appendices. More specifically, Chapter 2 frames the study by drawing together research done in the areas of: sustainability; learning; environmental action and change; critical thinking; social learning and collective interaction (particularly with(in) the family); and formal education and educators. Chapter 3 lays out the design of the study and pays particular attention to: the research methodology (participatory action research); the details regarding the study location and research participants; the research methods used (interviews, focus groups, journals); the ethical implications of doing this type of research; and the process of data analysis. Throughout Chapter 4, a number of findings are presented that explore the research participants' understandings of sustainability, engagement in action and critical thinking, learning and interaction with family members and other participants, and insights into the important role that formal education and educators play in sustainability. Chapter 5 concludes my thesis by highlighting how this study contributes to the research literature and by exploring the implications for future environmental education practice and research. References and appendices appear at the end of the thesis.

Chapter 2
Literature Review

This chapter sets the context for the study. The literature review draws together prior research done in a number of fields in relation to: sustainability; learning; engagement in environmental action and change; critical thinking; social learning and collective interaction (particularly with(in) the family); and formal education and educators. More specifically, this literature review identifies a gap: that is, the current lack of empirical studies that examine how environmental education can be used to engage Canadians families in sustainability, as well as studies that provide in-depth examinations of families' (a) understandings of sustainability, (b) participation in action, (c) engagement in critical thinking, (d) social learning and interaction, and (e) perspectives on formal education.

Sustainability

Working towards sustainability is at the heart of this research. Therefore, this section of the literature review examines some of the issues linked to sustainability, develops a definition of sustainability based on the literature reviewed, and suggests that working towards sustainability will require us to envision the future we wish to see, as well as seek out hopeful opportunities to engage in change. This section ends by narrowing down the scope of sustainability by framing it in a Canadian context.

The issues

The literature suggests that the major environmental problems of today cannot be solved if we continue on our current path of living (e.g., Kahn, R., 2009; Millennium Ecosystem Assessment, 2005a, 2005b; Orr, 2004; Tilbury, 2007; Wals, 2009). Many unsustainable practices (e.g., overconsumption, poor waste management, oil-based transportation systems) have not only environmental consequences (e.g., habitat loss, pollution, climate change) but also social implications (e.g., environmental issues are associated with social justice abuses, the negative impacts of which are linked to one's gender, socioeconomic status, culture, level of power, and geographical location; Klein, 2011; MacGregor, 2006). It could be argued that these impacts stem primarily from the failure to recognize, respond to, or appreciate the reciprocal relationship of and interconnectedness between humans and the rest of the world (Glasser, 2007) or to

understand how human actions, "are inextricably linked to the learning and enacting of oppression, and to ecological, environmental, natural resource, and cultural destruction across the planet" (Sandlin & McLaren, 2009, p. 15). These central issues are linked to numerous other problems and barriers,[1] the complexity of which can only allow one to conclude that there is no one thing that led to, nor one solution to fix, the unsustainable practices currently being perpetuated. That said, although solutions may be unclear or difficult to achieve, it does not mean that solutions are impossible (Turner, 2008). Therefore, in contrast to Jickling's (2004) comment, "There is a will, but is there a way?" (p. 15), I would say, "There is a way, but are we willing?"

As suggested above, when it comes to sustainability, the research suggests there are numerous things at play that make it difficult to understand, examine, and participate in. The ambiguity surrounding the word's meaning and application make it difficult to know whether or not something actually *is* sustainable, as well as leads to confusion and disagreement (Davidson, 2011; Manderson, 2006). For example, sustainability is viewed as multifaceted and contextual, which causes people and organizations to understand and apply it in different ways (Manderson, 2006). Not only that, but because the environment and our needs are continually in flux, researchers have suggested that our understandings of sustainability (including the science in this area) will always be changing and, thus, incomplete (Manderson, 2006; Reed & Peters, 2004). Therefore, our strategies of "achieving" sustainability need to be continually (re)negotiated, step-by-step and through time, because sustainability crises cannot be tackled in one particular way (Dyball et al., 2007). The literature suggests that consideration of these arguments is important when trying to work towards environmental and social change because it shows how there is not a single pathway to nor definition of sustainability; therefore, we cannot expect a silver bullet solution to address the variety of issues at play.

Defining sustainability

Despite the difficulty surrounding the word sustainability, it can be argued that many definitions and applications of sustainability can be linked back to two key foundational

[1] Researchers in a variety of fields (ecology, economics, ethics, health, politics, war, education, psychology, technology, science, etc.) suggest that there are a number of issues that make sustainability difficult to pursue or achieve (Glasser, 2007; Kollmuss & Agyeman, 2002; Kolstø, 2005; Lélé & Norgaard, 2005; Orr, 2002; Ostrom, 1990; Payne, 2010; Sarewitz, 2004; Tilbury, 2007; Wals, 2009).

documents: *The Brundtland Report* and *The Earth Charter*. For example, many current definitions of sustainability emphasize the need to provide a livable world for present and future generations, the roots of which can be linked back to the United Nations' (1987) foundational report entitled *Our Common Future* (also known as the *Brundtland Report*): "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (para. 1). Although this report helped put the idea of sustainability on the map, the *Brundtland Report* has been argued as proposing, "an ideal so vague as to be meaningless" (Davidson, 2011, p. 351) and critiqued for placing humans before other species and above nature (Jacob, 1994). Not only that, Davidson (2011) identifies the report's use of the term "Sustainable Development" as oxymoronic, as it assumes development based on continual growth (particularly economic growth) can be sustained.

Following the *Brundtland Report* in 1987, another key document about sustainability was produced: *The Earth Charter*. This charter was developed as a follow up to the United Nations Conference on Environment and Development's *1992 Earth Summit* in Rio de Janeiro. The sustainability principles outlined in the charter stress the importance of: respecting and caring for life; ecological integrity; social and economic justice; democracy; nonviolence; and peace for both present and future generations (Earth Charter Commission, 2000). This charter has been endorsed by thousands of organizations and individuals, including the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Conservation Union (IUCN) (Earth Charter Commission, 2000). *The Earth Charter* also reflects an approach to sustainability in which environmental, social, and economic factors are all considered necessary to the health and wellbeing of humans and other species. However, Kuhlman and Farrington (2010) warn that the shift to a three-pillar definition of sustainability that places environmental, social, and economic factors *as equal*, diminishes the importance of environmental health and makes an unneeded distinction between economic and social factors, which they argue should be linked as a single pillar called wellbeing. Therefore, although many definitions of sustainability can be linked back to these two foundational documents, they have not gone without their critiques. In addition to this, as the term sustainability becomes more popularized, various organizations, businesses, educational institutions, communities, and individuals are beginning to search for ways to integrate sustainability into their practices. These range from shallow efforts that give the impression of sustainability (e.g., "green washing") to

radical changes in practices, thinking, and treatment of others (e.g., The Natural Step Framework (TNSF), 2012; The Sustainability Tracking, Assessment and Rating System (STARS), 2012; Cradle to Cradle Design (see McDonough & Braungart, 2002); Transition Towns, 2010) (Closs, Speier, & Meacham, 2011).

Although it becomes clear that there is a variance in how sustainability is understood and applied, if one takes the key messages from the literature reviewed, sustainability can be considered a state in which present and future generations are able to meet their needs and maintain a high quality of life; this will only be achieved through upholding the environmental integrity needed to support a diversity of life (human and non-human), as well as through forming just and equitable social systems that foster respectful, caring, and peaceful relationships between people and with nature. Simply put, sustainability can be seen as our individual and collective responsibility to maintain the integrity of both environmental and social systems, as well as identify the inherent links between them.

Getting there…

Based on the discussion above, it can be seen that sustainability requires a great deal of forward thinking. For example, how will my actions today affect tomorrow? Which of my choices will have negative consequences and which will maintain or improve our circumstances ("our" meaning the collective of all living and nonliving things on earth)? Researchers suggest that envisioning can help provide direction when trying to answer such questions because it taps into people's hopes and dreams for the future and allows people to rethink whether they are creating their envisioned world through their everyday actions (Glasser, 2007; Tilbury, 2007; The Natural Step Framework (TNSF), 2012). Furthermore, by repeatedly asking, "Where are we? How did we get here? Where do we appear to be heading? Where do we want to go? How do we get there from here?" (Glasser, 2007, p. 35; see also Greenwood, in press), it may allow us to reflect upon the impacts of our actions and consider how our choices can and do make a world of difference. Therefore, this suggests that motivating people to envision what could be done to improve our future is a critical part of sustainability.

Although it should be stressed that people are generally living beyond their means (Moffatt, 2000), rather than centre environmentalism around what one should *not* do, the literature suggests that perhaps it should focus on the more hopeful aspect of what one *can* do

(Robinson, 2012; Roseland, 2009). After all, the way in which one frames and approaches a situation determines what one can do and learn (e.g., Hart, P., 2007; Jasanoff, 2003). For example, overwhelming people with information about how bad things are can contribute to feelings of indifference and powerlessness (Jensen & Schnack, 1997; McKenzie-Mohr & Smith, 1999). On that other hand, seeking out the more "joyful, playful, inventive, and celebratory" aspects of environmental action and learning (McClaren & Hammond, 2005, p. 287), looking for the opportunities embedded in each challenge (Roseland, 2009), and focusing on inspiration, positivity, empowerment, and forward-thinking, may allow people to feel as though they are working on, "more than just 'fixing problems'" (Vargas, 2008, p. 39). Therefore, it is important to consider that how we frame our environmental efforts, education, research, and campaigns can determine how and if people engage in sustainability.

Canadian context

The literature suggests that there is a need to examine the role of the Canadian context in sustainability. For example, some individuals, groups, and nations are impacting the environment much more than others and, by most reports, Canada and Canadians are identified as having significantly high environmental impacts.[2] Canada is one of the top ten Greenhouse Gas (GHG) emitters in the world, both in quantity and per capita (Parker & Blodgett, 2008). Furthermore, not only did less than half of the Canadian respondents to the Organisation for Economic Co-operation and Development's (OECD) 2011 survey say that they properly disposed of hazardous waste (e.g., batteries, pharmaceuticals), but Canadians were also identified as taking more trips in their automobiles and using more water than most of the other 33 countries studied by the OECD.[3] Generally speaking then, Canadians have assumed a critical role in addressing sustainability, both locally and globally. As Roseland (2000) suggests:

> With their relatively wealthy and well-educated populations, North American communities have a moral obligation to demonstrate leadership[,] … knowledge, technologies, and processes the world requires for sustainability in the coming decades. Citizens and their

[2] Of course, environmental impacts can vary significantly between individuals and groups within Canada.
[3] OECD (2011) members include: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States.

> governments have the ability to frame issues, assume leadership, champion initiatives, and demonstrate sustainable alternatives in their everyday practice. (p. 127)

Ultimately, if we are to look at the environmental impacts that we as Canadians have, as well as the opportunities open to us for influencing change, one can conclude that we have a very significant part to play in the transition to a more sustainable world.

Learning

Learning has been studied by a number of different researchers from a number of different disciplines. The literature that is discussed below highlights the work of researchers who understand learning to be linked to and embedded within our relationships and interactions. However, in order to narrow down the scope of this research, I conclude the section by suggesting that learning focused on the three areas of action, critical thinking, and social interaction has the ability to engage people in sustainable change.

Although various theories exist, arguably learning is a process which takes place *as we interact with and in the world*. As Illeris (2009) states, "all learning implies the integration of two very different processes, namely an external interaction process between the learner and his or her social, cultural or material environment, and an internal psychological process of elaboration and acquisition" (p. 8). Research has tended to study learning as primarily (or only) the latter--a process of the mind--whereas this research focuses on and acknowledges learning "as an aspect of all activity" (Lave & Wenger, 1991, pp. 37-38), in that learning is a process fostered through our relationships and interactions (Lave, 2009; McKenzie, 2008a; Wenger, 2009; Wentzel & Watkins, 2011). These relationships and interactions with/in the world (many of which are nurtured through our experiences in education; Hart, P., 2003) are not only human-to-human, but include our connections to/with place and time (Greenwood, in press), the stories we tell and are told (McKenzie, Hart, Bai, & Jickling, 2009), other species and nature (Anderson, 2010; Chawla, 2008), and our thinking, actions, values, and experiences (Hart, P., 2003; Hart, P., 2007; Lave, 2009; Lave & Wenger, 1991). In fact, "both ecological communities and human communities derive their essential properties, and in fact their very existence, from their relationships" (Capra, 2007, p. 13); therefore, it is critical to look at how our relationships impact what and how we learn.

Although our multiple relationships and interactions--with places, actions, people, materials, experiences, nature, ideas, other species, etc.--are all sources of learning, in order to narrow down the scope of this research, I have focused this study on three critical components of learning: action and hands-on experience; thinking (particularly critical); and human-to-human relationships and social interaction. Understanding learning in this way opens up many opportunities for education--both formal and informal--to create and nurture the types of action, thinking, and social interaction that may engage people in sustainability. The significance of these areas in relation to sustainability is outlined in the following sections.

Sustainable Action and Understanding Change

This portion of the literature review examines work that has been done in the area of sustainable action, as well as on personal and societal change. The first section brings together a variety of literature that suggests people's everyday actions matter, in that they have the ability to be socially and environmentally damaging or beneficial. The second section continues with an examination of what researchers have found to encourage or prevent change. This is followed up by a discussion on the complexity of change.

The role of action in sustainability

The literature suggests that our actions are continually affected by and affecting everything else. Our decisions and actions may not seem big or even be noticed by others, but it is because we are people-in-the-world (Lave & Wenger, 1991; see also Chapter 2: Learning) that we have an impact on what has happened, is happening, and will happen in the future. For example, following the lifecycle of a cotton T-shirt, one can conclude that its production and use has and will affect different people and ecosystems throughout the world (Steinberger, Friot, Jolliet, & Erkman, 2009), the impacts of which may be advantageous or exploitative, minor or major, depending on the angle from which one is looking. So, why is this important? Because it showcases how, "sustainability depends on fundamental changes in … the choices people make day-to-day" (Tilbury, 2007, p. 125). In other words, even modest changes have the potential to contribute to significant change if these actions are done by a collective of people (e.g., Reid, C., Tom, & Frisby, 2006), whether these changes be damaging (e.g., CFC use in refrigerators and aerosol containers led to the breakdown of stratospheric ozone; Vitousek, Mooney, Lubchenco,

& Melillo, 1997) or beneficial (e.g., people are taking action to improve the health of their communities and the environment; Transition Towns, 2010; Turner, 2008).

Everyday life has been recognized by researchers as one of the most appropriate starting points for people to engage in environmental issues and collective action (Tilbury, 2007). For example, the OECD (2011) found that, "household consumption patterns and behaviour have an impact on natural resource stocks, environmental quality, and climate change," and that these impacts have been growing and are likely to continue increasing over the coming years (p. 22). Therefore, it can be argued that the world and its species feel our actions, react to our actions, and flourish or collapse due to our actions (He & Hubbel, 2011; Millennium Ecosystem Assessment, 2005a; Millennium Ecosystem Assessment, 2005b; Smith & Smith, 2001). In addition to this, virtually no respondent in the OECD's (2011) report disagreed with the statement, "that each individual/household can contribute to a better environment" (p. 33). This point confirms MacGregor's (2006) views that, "changing the practices and behaviour of individual citizens in the private sphere is becoming an important part of many visions of an ecological society" (p. 102). Furthermore, the (re)emergence of grassroots movements and involvement in politics also implies that people seek opportunities in their everyday lives to extend into public forms of participation that address local issues and affect social and environmental change (Cho, 2010). This suggests that our efforts to effect change through our everyday lives can extend into both personal and public levels of participation.

When considering the types of actions and change that may be required in order for sustainability to take root in our lives, there has been much debate regarding whether the "little things" will get us there. For example, some literature suggests that our perspectives on what constitutes environmental action must go beyond our consumer acts. As Richard Kahn (2009) points out:

> Whether it is a hybrid vehicle, organic food, an energy-efficient lightbulb, shade-grown coffee and fairly traded chocolate, non-toxic housecleaning supplies, or a properly "greened" ethical investment stock portfolio, all manner of consumer life has begun to offer options for people seeking to be more socially and environmentally conscious in their lifestyles. … Yet, critical due diligence is also required … [because] our educational relationship with the ecological issues that these products purport to help solve is reduced

> and cheapened when we accept that buying the new "eco-friendly" formula thereby absolves us of deeper levels of social inquiry and political action. (pp. 48-49)

Furthermore, not only does shifting consumer preferences to "greener" options *not* require a change in lifestyle or behaviour (Costanzo, Archer, Aronson & Pettigrew, 1986 as cited in McKenzie-Mohr & Smith, 1999), but R. Kahn (2009) also argues that green consumerism is a limited sphere for teaching and learning because it gives, "an inflated sense of individual agency over the world's industrial processes," and promotes repetitive spending and the current hyper-consumptive economic structure (p. 52). That said, challenging our consumer selves should not go unexamined because, for the time being at least, "we undoubtedly live in a consumer world, and we enact processes of consumption in almost every aspect of our lives" (Sandlin & McLaren, 2009, p. 2). Therefore, critically thinking about consumer choices and everyday actions can connect us to our habits, including what we use, buy, and understand as "normal" (Beavan, 2009). Furthermore, shifting our day-to-day actions can often be less complex, require less effort, and be less dangerous and stigmatizing than activities that have more barriers associated with them (e.g., challenging oppressive systems, altering infrastructure, shifting political agendas, transforming economic systems) (C. Reid et al., 2006; McKenzie-Mohr and Smith, 1999). Therefore, focusing on the little things may be a good starting point for some people. As McKenzie-Mohr and Smith (1999) state, once people begin to identify themselves as environmentally conscious, they tend to continue on this trajectory by acting in line with environmental values more often and in more ways. Therefore, although focusing on the little things (e.g., personal consumerism) may neglect to address sustainability as a whole, setting goals that are achievable in daily life are still steps in the right direction.

Understanding how and if change occurs

Multiple researchers have identified factors that need to be present in order for change and action to occur. First of all, essential are motivation and the belief that change is possible (Miller, 1998). In addition to these, empirical work has shown that the following factors are able to facilitate action: Being amongst others who believe that both individuals and groups can make a positive difference (Chawla, 2008; Payne, 2005a; C. Reid et al., 2006); communicating one's commitment(s) and/or goal(s) publicly (Locke & Latham, 2002; McKenzie-Mohr & Smith,

1999); the feeling that one has some personal control over solving a problem (Allen & Ferrand, 1999; Chawla, 2008); having the ability to critically think about issues facing one's own community (Meyers, 1986 as cited in Bonney & Sternberg, 2011); choosing one's own goals so the actions taken align with one's own needs, are personally meaningful, and give one a reason to change (Miller, 1998); being exposed to cooperative, supportive, and democratic settings that foster the belief that being political is not only easy and powerful but is also imbedded in every consumer/citizen choice one makes (Payne, 2005a); being given positive reinforcement (Miller, 1998) and/or incentives (e.g., economic, social, or in terms of relative satisfaction or convenience) (McKenzie-Mohr & Smith, 1999); and being able to find opportunities to participate in decisions that will effect change (Chawla, 2008). People have also been shown to be more likely to take up actions that they believe to be attainable (Locke & Latham, 2002), that they have had previous experience engaging in (McKenzie-Mohr & Smith, 1999), that have visible or measureable results (Rogers, 1995), or that are straightforward, easily understood, or do not require new skills to be implemented (Rogers, 1995). On the other hand, people are also interested in pushing themselves just above their levels of ability and expertise (West, 2009), thus it should not be assumed that people only wish to pursue actions that are relatively simple and attainable. Ultimately, looking at the conditions that help facilitate action and change is important if our efforts to engage people in sustainability are to be successful.

Unfortunately, the literature also suggests there will often be barriers that limit people's participation in environmental change. For example, despite the fact that barriers can vary greatly between people, McKenzie-Mohr and Smith (1999) believe that there are a few primary reasons that people do not engage in environmental action: People do not know what to do, do not see the benefits of acting, believe there to be considerable difficulties associated with action, or feel that it is easier or more beneficial to continue acting in the ways that they are currently. The latter confirms Rogers' (2002 & 1995) findings, that it is often difficult for new or innovative ideas and actions to become adopted, especially ones that are preventative in nature (e.g., acting now to prevent consequences down the line), even if there are obvious advantages associated with the activities. Furthermore, it has been noted that, "People have many reasons to resist making sacrifices for the common good, among them the concern that others will cheat, and that they will look like fools" (Kaplan, 2000, pp. 501-502; see also Ostrom, 1990). Kaplan (2000) also mentions how there is often, "a lack of appropriate infrastructure, or of multiply

desirable choices, or of cultural support" (p. 501), which means that even if people *are* interested in changing, there are barriers that exist that may prevent them from doing so. Another common issue discussed in the literature is that "environmentally friendly" actions can be inconvenient, expensive, time consuming, not enjoyable, not cool, and unsafe, while the people who practice these actions are viewed as part of a counter culture (Glasser, 2007). There will, of course, be cases in which these generalizations are true, but many of these reactions to environmentalism are just that: generalizations. For example, barriers to sustainable action, such as difficulty and inconvenience, are often psychological (Orr, 2002) or a matter of perception (McKenzie-Mohr & Smith, 1999). Although perceived barriers need to be treated just as seriously as real barriers, they are *changeable* (McKenzie-Mohr, 2012). In addition to this, people who act with an environmental consciousness tend to be very proud of their (and their family's) green differences (Payne, 2010), while a high quality life can be achieved by living lightly on the earth (Prescott-Allen, 2001; see also Roseland, 2009). Therefore, although barriers to sustainable living do very much exist, not only can some of these be removed, but the rewards that come from leading a more sustainable life may also outweigh the barriers and challenges.

Although the above factors increase or decrease the chances that change will occur, ultimately it is difficult to predict or determine the pace and ways in which people change. For example, people who are aware of an issue, have access to accurate information, and acknowledge concern over a problem do not necessarily change or take action; even if they do, the actions or changes that take place are not guaranteed to be appropriate or effective (Glasser, 2007; Hostetler, Swiman, Prizzia, & Noiseux, 2008; Jensen & Schnack, 1997). Further, the complexities of change may mean that action takes months or years to get underway even if the awareness component comes quite quickly, while, under other circumstances, action may happen quickly even though the awareness component might not develop until later (McClaren & Hammond, 2005) or not at all. In addition to this, Braus (2004) states that it is extremely difficult to measure if or how a program contributes to attitude and behaviour change, or to gauge how educational experiences lead to a more sustainable future; therefore, even if change *does* occur, it may not be easy (or possible) to measure. The reality is that human change can be unpredictable, complex, and contextual, not to mention, difficult to analyze.

If we are to look at change more generally, it has been argued that changes that take place in society do not occur in the same ways, nor do they happen simultaneously. For example,

Gough and Scott (2004) argue that practices, organizations, and cultural institutions must change (or be willing to change) simultaneously otherwise we will just keep heading down the track we are already on. The issue here is that, although effort is needed in all sectors of society if we are really serious about creating more sustainable communities, simultaneous change is unlikely because change generally happens in phases on both individual scales (DiClemente & Prochaska, 1998) and on collective or societal scales (Ostrom, 1990). Not only that, but waiting for simultaneous change to occur could be potentially damaging because it might result in procrastination (e.g., "I'm not changing until those people and these circumstances change"). Furthermore, as Rogers (1995) emphasizes, some ideas can reach widespread adoption quite quickly, while others may require decades to become adopted by a society. Therefore, it is unwise to assume that all the changes needed to address the multiplicity of sustainability issues at play can or will occur all at once. Not only that, but because people differ in terms of their interests, intentions, and goals (Scott & Gough, 2008) and have a variety of reasons for engaging in decisions beyond just concern for the environment (e.g., health, quality, convenience, money) (Grønhøj, 2006; OECD, 2011), it cannot be expected that practices, organizations, or cultural institutions (or the people embedded within them) will change simultaneously or in the same ways. What it comes down to then is that the complexity of change requires us to be supportive of, or at least open to, the idea that sustainable actions and change may occur in multiple ways and/or involve different lengths of time.

Making the Link: Critical Thinking and Sustainability

This section of the literature review begins by giving a brief overview of how critical thinking is described in the research. From there, it goes on to highlight current literature that suggests critical thinking to be a social process. The second section brings together literature that makes the argument that the success of sustainability relies on our ability to think critically, as it can help us to think more deeply about sustainability, challenge issues of power, and become better environmental decision-makers.

Understanding critical thinking

Critical thinking has been and continues to be a well-researched area and, although it is often understood as a cognitive process, current research also suggests that it is a social process.

In general, researchers tend to understand critical thinking as the capacity to: assess situations by examining relevant "evidence"; question arguments and claims by asking probing questions; develop thorough knowledge of a topic or area; think reflectively; think beyond one's own positioning, arguments, values, and assumptions; and see the "bigger" picture through the development of a holistic viewpoint (Mason, 2008). Although having the ability to think in these ways is undoubtedly important and can lead to critical thinking, some researchers have cautioned that critical thinking must go beyond traditional understandings that (a) link critical thinking primarily to rationality, logic, and problem-solving, (b) overemphasize they types of thinking that can be measured, and (c) focus on critical thinkers as isolated individuals (Kincheloe, 2004). For example, Peters (2008) believes that it is important to link critical thinking to more than just our brain activity, physiology, and evolution; rather, it should be treated as a public, cultural, and social activity. In other words, critical thinking, "is never detached from the world, its people, and their emotional needs" (Kincheloe, 2004, p. 6). Kincheloe (2004) goes on to express how he and his colleagues find the social aspect of critical thinking to be a significant point of examination:

> We are very interested in combining an understanding of the mind as a socially constructed entity that is realized through interaction in a variety of social contexts with social, cultural, and political insights into the ways the world operates--a theory of mind integrated with a social theory. The relationship between these complex processes, within which critical thinking must operate, is a key dimension in our concept of *complex* critical thinking. (p. 13)

Therefore, although critical thinking has generally been understood as the process of studying one's thoughts (Bonney & Sternberg, 2011) (which includes problem-solving, reflection, questioning, etc.), researchers have linked it to our social interactions as well.

To build off the discussion above, there are a number of ways that researchers have found critical thinking to be a social process. First of all, Kolstø (2005) suggests that interaction with and feedback from others can, "stimulate thorough consideration of one's own view and lead to rethinking or clarification of one's own argumentation" (p. 221). For example, social interaction between various individuals and groups may prompt critical examination of, "the questions we

raise and those we pass over[,] … the knowledges and actions that we support[,] … [and our] particular cultural understandings and practices" (McKenzie et al., 2009, p. 3), while different forms of cultural experiences can enable us to think differently (McKenzie, 2009). Furthermore, critical thinking can occur when people are exposed to the diversity of others (Dyball et al., 2007), as being exposed to different ways of thinking, starting points, motivations, values, or abilities, may challenge people to consider that what is "normal" for them, may not be "normal" for others. Not only that, but being encouraged to deeply consider the value in various ways of thinking, understanding, and problem-solving may make it easier for communities to work together because shared issues, such as sustainability, "[are] not about one way of knowing or one way of doing … [but require] the integration of our thinking" (Dyball et al., 2007, p. 191). Therefore, because critical thinking can be considered a social process, it is important that people work *together* to better understand and address complex areas such as sustainability.

Critical thinking and sustainability

Researchers have suggested that critical thinking is required if we are to align our society and ourselves with sustainability. As Tilbury (2007) states, the changes that are needed in order to create a more sustainable world will only come about through critically questioning our individual and societal ways of life. She warns that critical thinking should not be confused with or substituted by "raising awareness," as only the former will enable people to get to the heart of sustainability. Critically examining the practices, assumptions, beliefs, and "imaginaries" of ourselves, of others, and of the systems we are a part of could push us to better understand the importance of sustainability (McKenzie et. al, 2009), while reflecting on the linkages between environmental and social issues could lead us to a deeper examination of the root causes of *unsustainability* (Smith, 2011; Tilbury & Wortman, 2004). As part of this, addressing complex sustainability issues requires that we critically think about, "the consequences of [our] actions from interpersonal, political, moral, and ethical perspectives" (Kincheloe, 2004, p. 21), as well as critically analyze who and what is influencing us--media, family, friends, corporations, culture--and how (Tilbury & Wortman, 2004). In this sense, critical thinking can not only help us come to a better understanding of sustainability, but also lead us to reconsider who we are and what our position--individually and collectively--in the world is and should be (Kincheloe, 2004).

It is also important to highlight the work of researchers who believe in the ethical dimension of critical thinking and its ability to challenge issues of power. For example, the following researchers suggest that critical thinking can (and should) be based on producing a more equitable world. Kincheloe (2004), Smith (2011), and Tilbury (2007) argue that critical thinking can help us to better identify existing power imbalances, as well as understand how they influence us and others. Further, Kincheloe (2004) states *complex* critical thinkers, "understand the way one's location in the world or position in the web of reality (which is determined by race, class, gender, sexuality, religion, etc.) shapes how one sees oneself and the world" (p. 3), while Mason (2008) states critical thinking can lead to greater tolerance of others and more respectful interactions. In fact, Kincheloe (2004) argues critical thinking should shape people to become more oriented towards the common good: "if criticality doesn't help us transcend egocentrism and produce an ethic of compassion and humility, then *it has failed*" (p. 29). Thus, critical thinking can work towards alleviating oppressive forces that undermine people's abilities to meet their needs, maintain a high quality of life, and contribute to society in meaningful ways, which are key factors of sustainability (see Chapter 2: Defining Sustainability).

Not only does research suggest that critical thinking can help people come to better understandings of themselves, others, and the world, as well as challenge issues of power, but also that it can lead people to become better decision-makers; more specifically, critical thinking can increase people's abilities to make better decisions regarding sustainability (Krasny & Bonney, 2005). For example, it can enable people to understand and clarify whether their and others' choices are in line with sustainability, which in turn can encourage people to identify *why* certain decisions are made and what alternatives might exist (Tilbury, 2007; Tilbury & Wortman, 2004). Furthermore, Smith (2011) states that critical thinking can increase people's confidence and capacity to act, which can help people respond to complex and ambiguous circumstances: "the capacity to prioritize actions, to anticipate positive and negative consequences, and to adapt to unexpected outcomes is strengthened" (p. 7). Lastly, because, "complex critical thinking is always concerned with what *could* be [emphasis added]" (Kincheloe, 2004, p. 31), it encourages people to reassess and rethink whether their actions and values are resulting in, "the world of [their] hopes and dreams" (Glasser, 2007, p. 37). In sum, the literature suggests that because critical thinking can help people make better decisions regarding complex situations and issues

such as sustainability, fostering critical thinkers is an important component of environmental education.

Fostering Sustainability through Social Learning and Collective Interaction

This portion of the literature review draws on research done in the areas of social learning, collective interaction, and family participation in sustainability and suggests that collective contexts play a role in furthering environmental learning, thinking, and action. The discussion starts with a description of the research done on social learning and then goes on to illustrate how *facilitation* of the social learning process can be an effective way to engage people in sustainability. The examination that follows describes how researchers have found that interacting with others in our communities can lead to personal and collective wellbeing. Building on these previous sections, the discussion then narrows its scope by drawing on research that suggests families, as social learning contexts, can be significant drivers of sustainability. Finally, despite the focus on social learning and collective interaction in this study, I end by acknowledging the importance of individuals' involvement in sustainability as well.

Social learning

Researchers have found that our relationships with others significantly influence our values, thinking, and actions, including what we learn, how we learn, and if we change (Kincheloe, 2004; Lave, 2009; Lave & Wenger, 1991; McKenzie, 2008a; McKenzie-Mohr & Smith, 1999; Miller & Rollnick, 2002; Orr, 2004; Vargas, 2008; Wenger, 2009). Therefore, I have drawn on a variety of research in the area of social learning, both in terms of what it is and how it impacts people. Although there is not a consensual understanding of the meaning of social learning amongst researchers (Wals, 2007), social learning has been framed as a process of learning that is interactive, collaborative, and participatory, with a focus on planning, problem-solving, decision-making, action, critical thinking and reflection, communication, and negotiation (Dyball et al., 2007; Glasser, 2007; Tilbury, 2007; Wildemeersch, 2007). Some of the identified outcomes of social learning are a sharing of practices, meanings, and experiences, as well as collaborative knowledge generation, innovation, and creativity (Hart, R., 2008; West, 2009). In addition to this, the process of social learning can lead to individual and collaborative action competence (Hart, R., 2008; McKenzie-Mohr & Smith, 1999), better understandings of

ourselves and the world (Greenwood & McKenzie, 2009), and community building (Hart, R., 2008). As Haury (2005) reiterates, learning from/with others can give people, "experience in the give and take of the culture and social fabric of [their] societies" (p. 189). It should also be emphasized that social learning does not just refer to peer-to-peer learning; rather, there are great benefits that come from learning in diverse and intergenerational settings: "We must be engaged in a never-ending process of working across generations to generate improved ways of adults and children working together, both on the realisation of children's rights but also on their shared involvement in the future of their communities" (Hart, R., 2008, p. 29). Lastly, it has been argued that social learning--due to the power of relationships, sharing, interaction, observation, modeling, and imitation--is a key factor in how leadership is passed through a community (Blewitt, 2006); therefore, when leadership qualities are exemplified around us, we learn from these and, in turn, incorporate this learning, both knowingly or unknowingly, into our practices and worldviews. For these reasons, researchers and practitioners who wish to facilitate valuable learning experiences may wish to consider the opportunities that social learning may provide.

Researchers have recognized that *facilitated* social learning can help foster sustainability (Blewitt, 2006; Wals, 2007). To expand on this, although there is value in learning from others in often incidental or seemingly unimportant ways (Blewitt, 2006), I agree with Wals and van der Leij (2007) and interpret, "social learning not just as a naturally-occurring phenomenon but also as a way of organizing learning and communities of learners" (p. 18). For example, Lave and Wenger (1991) explain how communities of practice (e.g., families, workplaces, neighbourhoods, activist groups, interest groups) establish and enforce norms due to their ability to, as Wenger (2009) states, "develop their own practices, routines, rituals, artifacts, symbols, conventions, stories, and histories" (p. 212); thus, there exists the potential to facilitate social learning within these communities of practice to encourage people to establish norms that support sustainability. Furthermore, Chawla (2008) suggests that it is important to facilitate meaningful learning experiences that give people opportunities to socialize with nature and people because these interactions impact our understandings and values:

> To know and value the diversity of life … [requires us to] see communities of plants and animals, details of their individual existence and interactions, and patterns of their ever-

> changing habitats. … It includes learning to see the diversity of human communities and the ways in which people interact with their place. (p. 98)

Therefore, if we wish people to support, understand, and engage in sustainability, this may require that the social learning process be facilitated in purposeful and targeted ways to encourage this (Wals, 2007).

Collective interaction and wellbeing

Not only do our relationships with others affect our learning, as suggested above, but our connections to and interactions with others can impact our personal and collective wellbeing as well. For example, collective interaction can result in numerous benefits: It can allow people to connect and, "make good things happen" (Vargas, 2008, p. 34); increase personal and community power (Kaplan, 2000; Vargas, 2008); enhance understanding between individuals and groups (Vargas, 2008); lead to better support amongst people (Kaplan, 2000; Vargas, 2008; Wentzel & Watkins, 2011); increase levels of motivation and engagement (Wentzel & Watkins, 2011); and strengthen people's sense of belonging (MacKay, 2005). In Rudkin and Davis' (2007) examination of the topic, they identify a significant amount of research that emphasizes the important roles that collective interaction plays in our lives in terms of wellbeing:

> Social connections among people are meaningful in and of themselves. Individuals who report connections to their communities also report feeling happier, healthier, more satisfied with life, and less lonely (Davidson and Cotter 1991; Pretty, Andrews and Collett 1994). In addition, social connections serve purposes, one of which is to help residents determine the course of community life. Individual connections and community health go hand in hand. People with a strong sense of community often work to improve their surroundings by participating in block associations, interacting with government officials, voting, and taking action to solve community problems. (Chavis and Wandersman 1990; Davidson and Cotter 1993; Florin and Wandersman 1984). (p. 108)

Building on this, giving people opportunities to create and strengthen relationships (e.g., with family members and with other families) is important because relationships that are formed

independently of governments, institutions, or corporations, can build strong, "community fabric … [as well as] bonds of information, trust, and inter-personal solidarity" (Coleman 1990 as cited in Roseland, 2000, p. 81). As one can see, collective interaction can positively impact our quality of life, as well as the health and strength of our communities.

Engaging families in sustainability

Researchers have found that the people with whom one is living are sources of considerable influence and reinforcement (Miller, 1998); therefore, family members could play a significant role in influencing each other in the area of sustainability. For example, Phillip Payne--one of few current environmental education researchers engaged in empirical research on families and their relationships to the earth--provides empirical evidence that families are highly influential in the areas of education and environmental experience, as well as "powerful shaper[s]" of their other family members' beliefs, understandings, knowledge, and everyday (in)actions (2010, p. 224). The impact of family is also frequently noted as the reason that environmental activists and educators are involved in, concerned about, and committed to environmental issues (Chawla, 2008; Vargas, 2008). Furthermore, Grønhøj (2006) explains that, because families are significant socializing units, many practices involve multiple family members (e.g., many members of a household may contribute--through suggestion, support, questioning, or opposition--to the refusal of or involvement in particular environmental actions). For example, just as parents' environmental behaviours influence their children's environmental actions and learning (Grønhøj, 2006; Payne, 2005b) (e.g., children imitate their parents' environmental practices both knowingly and unknowingly; Payne, 2010), children affect their parents' environmental actions and thinking as well (Grønhøj, 2006; Payne, 2005a, 2010) (e.g., the parents in Istead's (2009) study felt that their children influenced them in a number of ways, for example, in the areas of consumption and waste). Furthermore, sibling-to-sibling and partner-to-partner learning can occur as well. For example, children tend to remind siblings about green rules that have been established by family members (Payne, 2010), while spouses affect one another during day-to-day interactions (Grønhøj, 2006). These findings are important in that they reflect how family members influence each other in ways that could be advantageous when it comes to creating and maintaining sustainable practices.

The literature suggests that family communication plays an important role in environmental decision-making. For example, one of the defining characteristics that Payne (2010) identified of green families (families who collectively and voluntarily undertake proenvironmental action) was good communication: children and parents alike felt their voices were being heard; communication stayed open; and family members felt confident enough to raise their concerns with one another. Vargas (2008) also suggests that family meetings can play an important role in opening up dialogue and prompting good things to happen. For example, group dialogues help families, "hear all voices, not merely the oldest, loudest, or male ones," and can provide a respectful forum for family members to connect, discuss issues, and form solutions (Vargas, 2008, p. 70). Vargas (2008) continues:

> We [as families] need to be sharing conversation, asking or responding to questions that help us know each other in meaningful ways. Informally or more formally, we need to share on such themes as: What are you experiencing? What challenges are you facing? … Sharing with each other about such questions keeps us informed in a way that maintains or deepens our connection. (p. 90)

As one can see, family communication can foster the conditions that support not only meaningful interaction between family members, but also participation in sustainability.

Families, as communities of practice, are able to establish and enforce norms (Wenger, 2009; Lave & Wenger, 1991). These norms can either support or discourage sustainability. For example, families are able to foster a setting of, "trust, respect, support, discipline, care and reciprocity," which, in turn, can play a role in encouraging participation in environmental learning and action (Payne, 2005b, p. 7). On the other hand, families may not lead to the types of change needed if the norms that exist within them do not readily accept or support environmental practices. For example, if an idea (such as becoming more engaged in environmental action) is incompatible with the values and norms of a community, there is less likelihood of it being adopted (Rogers, 1995). To build on this, negative family reactions (e.g., mocking, disagreement between members, conflict) can influence family members to be less inclined to prefer certain behaviours and, in fact, be a main reason that environmental actions are *not* practiced (Grønhøj, 2006). Therefore, because families can be supportive of *or* barriers to sustainability, researchers

and practitioners could play a critical role in finding and facilitating ways to encourage families to establish norms that support the types of values, interactions, and practices that foster sustainability, as well as unteach the norms that do not.

Although researchers have suggested that families are important collectives to engage in sustainability, it has been suggested that more work is needed in this area. For example, Payne (2005a) has advocated for continued and additional research based on household "ecopraxis" for the reason that we still, "have relatively few insights into how household ecologies … might be developed, or sustained" (p. 82). Grønhøj (2006) agrees, stating that, although the need to examine household involvement in environmental activity has been stressed by some researchers, "the impact of the 'family dynamics' on environmentally oriented consumption practices in a family-household remains relatively unexplored" (p. 492). Furthermore, although our most immediate communities--our families--can be significant sites for change, "we often neglect to [encourage] change among the people closest to us, to care for and enlist them in creating the better world we seek" (Vargas, 2008, p. 9). Therefore, there appears to be a gap in both practice and research when it comes to engaging families in environmentally and socially responsible change.

Individuals can make a difference too…

Despite the focus on social learning and collective interaction in this study, the value and importance of individual agency should not be undermined. More specifically, although I agree with Kincheloe's (2004) statement, that "people are not abstract individuals who live as fragments, in isolation from one another … [but] become who they are and change who they are as a result of their connections to the social sphere" (pp. 4-5), this is not to suggest that an individual cannot effect change. For example, "although individuals remain subject to forms of power and control in the course of their everyday lives, they nevertheless 'seek forms of resistance or escape; everyday life has [therefore] become a field or a site of struggle' [Chaney, 2002, p. 175]" (Bennett, 2005, p. 72; see also C. Reid et al., 2006). In other words, individuals attempt to influence, resist, and change the systems they are embedded within. Indeed, Colleen Reid and her colleagues (2006) suggest that personal actions should not go unrecognized; rather, they feel that there is a need to appreciate both the diversity of collective *and individual* actions that, "may eventually and potentially contribute to a larger social change agenda" (p. 327). Even

though, “a system’s norms can be a barrier to change” (Rogers, 1995, p. 26; see also C. Reid et al., 2006), framing individuals as *only* victims of broader contexts and circumstances risks diverting all responsibility and agency away from individuals. Rather than empowering people, this approach runs the risk of implying that an individual cannot do anything about the situation they are in. This is not to suggest that responsibility of systemic situations should be placed on the shoulders of individuals who may have little power to change their circumstances, let alone the broader social and environmental conditions they are living within (C. Reid et al., 2006), nor is it meant to give the false sense that large scale change will be achieved through only a few individual acts (Reese, 2011), but only to emphasize that meaningful change can take place at both collective *and* individual levels (C. Reid et al., 2006).

The Role of Formal Education and Educators in Sustainability

The last section of this literature review considers the important role that formal education and educators can play in fostering sustainability. First, the literature reviewed illustrates how education, if delivered in ways that challenge status quo approaches to education, can help us transition to more sustainable ways of living. Next, the discussion highlights research that suggests environmental education needs to extend beyond the classroom in order to reach people in their everyday lives. To conclude, the literature review draws on research that demonstrates the importance of having educators who support sustainability in our schools.

Formal education and sustainability

The literature suggests that formal education, due to its significant role in influencing people’s learning, should be called upon to help us transition towards more sustainable ways of living (Hart, P., 2003). Thus, it is important to examine the types of educational approaches that may be able to take us to where we want to go. For example, there are many successful examples, worldwide, of how education can be used to engage people in learning about and from the environment (Tilbury, Stevenson, Fien, & Schreuder, 2002). These approaches tend to focus on education’s ability to foster critical thinking, community, action, collective responsibility, and political literacy, as well as values such as equity, cooperation, care, and thoughtfulness (Fien & Lopez Ospina, 2004; Reid, A., Jensen, Nikel, & Simovska, 2008; Stevenson, 2002). Not only

that, but Stevenson (2002) offers a view of education that is to serve the common good and collective interests, with a focus on both social justice and environmental responsibility:

> A goal of education, it is argued, should be to critique dominant cultural patterns and identify alternatives that provide greater social justice and enhance the human potential of the disadvantaged. … [This] has been extended both in scope and reach so that it is now widely recognized that our global society has a collective or shared interest in the preservation of complex ecosystems and genetic diversity for the present and future inhabitants of planet earth. (p. 188)

Stevenson's (2002) view challenges the use of education to perpetuate existing norms, which is echoed by Greenwood and McKenzie (2009): "We cannot deconstruct and restory oppressive relationships without considering how the dominant structures and norms of schooling and education often perpetuate and support the very problems we hope to address" (p. 9). Furthermore, Torres and Marriott (2010) state that although, "Interactivity, cooperation, collaboration, dialogue, exchange, knowledge production and group communication are constantly stressed … few [education] programmes actually incorporate pedagogical strategies that guarantee such practices" (p. xxi). As such, Cañas and Novak (2010) suggest that we must move away from the traditional approaches of education that focus on individual learning, because these methods limit people's abilities to be flexible, creative, critical, and collaborative learners. Lastly, experiential learning has been noted as enabling learning about and from the environment: "When environmental educators and activists describe their formative experiences, they mention natural areas outside school more often than schools. Yet schools can provide these experiences too if they turn their yards into natural habitats" (Chawla, 2008, p. 104). These arguments suggest that, although education can play a critical role in sustainability, there is also the need to recognize that formal education can greatly vary in its scope and not always lead to learning objectives such as collaboration, social justice, and environmental responsibility.

If we are serious about transforming our communities and ourselves through education, researchers state that we must go beyond the commonly held position that education is for knowledge generation and transfer alone. For example, although formal education may teach important knowledge, it may not help people address the root causes of environmental

challenges, nor equip them with the ability to envision, develop, and manage solutions that take into consideration the political and social dimensions of environmental change (Tilbury & Wortman, 2008). As Stevenson (2002) states, "To base the school curriculum on the traditional disciplines of knowledge alone [is not enough.] … We need more than spectators, we need people who … can integrate thought and action" (p. 191-192). Furthermore, we must challenge the traditional cognitive theories of learning that understand learning (and therefore, education) as simply a process by which one acquires facts, problem-solving skills, and knowledge (Capra, 2007; West, 2009), because not only do knowledge and awareness not necessarily lead to environmental action or change (Capra, 2007; Kollmuss & Agyeman, 2002; McKenzie-Mohr & Smith, 1999; Tilbury & Wortman, 2008), but these theories also distance us from our experiences and separate our minds from the world we are continually interacting with (Lave, 2009). Therefore, based on these findings, it would be unwise to believe that knowledge alone will lead us towards a more sustainable world.

Instead of a one-size-fits-all approach to education, the literature suggests that working from the contexts and starting points of the learner(s) might be a beneficial and effective way to connect people to environmental learning, values, and action. For example, universal curricula or uniform ways of teaching can neglect a learner's context (McKenzie, in press) and/or ignore the fact that people do not learn in the same ways (Braus, 2004); in this sense, some approaches to education can undermine the ability for learners to develop their own ways of thinking and doing. Furthermore, because people place different value judgments on the environment (Dyball et al., 2007), using a "this is the *right* way" approach to education risks excluding certain voices or opinions (McKenzie, in press). To build on this, Kaplan (2000) argues that, not only can telling people what value systems to adopt neglect the complex and continuous process of learning and relearning values (not to mention, cause people to resist what they have been told to do, believe, or understand as true), but asking people to take action for particular reasons or in particular ways can undermine the talent, ingenuity, and knowledge of individuals and groups, as well as ignore the various ways goals can be achieved. Therefore, teaching approaches that wish to foster environmental and social responsibility may need to start where people start in the hopes that, as Kolstø (2005) suggests, people will make decisions based on combining what they learn with what they value: "Thus the aim is not to convince the learners that one set of values and actions is correct, but to challenge the learners' views and values in order to develop their

own thinking" (p. 207). This suggests that less prescriptive educational frameworks may be very effective in creating the conditions for people to engage in sustainability because they allow people to start from within their own comfort zones, contexts, and interests and expand their learning and understandings from there.

As researchers have found, learning is positioned within everyday experiences throughout one's lifespan (Simovska, 2008; see also Lave, 2009; Wenger, 2009); therefore, it is important that environmental education go beyond formal education and be integrated into one's daily life (Tilbury, 2007; Wals, 2009). For example, the people who participated in Gershon's (2010) household education programs (*Green Living* and *Low Carbon Diet*) began to learn about and engage in environmental action, which highlights how informal and lifelong education should not be dismissed as a viable way to engage people in sustainability.[4] As Fien and Lopez Ospina (2004) state, those who are no longer in primary, secondary, or postsecondary education are often not exposed to any form of environmental education; this can be an issue because adults are a crucial group to engage due to the fact that they are the, "voters, consumers, workers, employers, parents, … [and] educators [of the world]" (Fien & Tilbury, 2002, pp. 176-177). Furthermore, those who are no longer in formal education may be limited to market-driven ideas of what constitutes green behaviour. As Sandlin and McLaren (2009) write: "The market teaches learners--in informal and incidental ways--how to consume, how to behave in the marketplace, and how to interact with consumer capitalism" (p. 7). This type of "environmental education" must be challenged so that a deeper examination of what sustainability is and requires may be undertaken. Therefore, as the literature suggests, environmental education should extend beyond formal education in order to engage those who might otherwise be excluded from opportunities to critically reflect on, engage in, and learn about sustainability (Fien & Lopez Ospina, 2004; Sandlin & McLaren, 2009).

[4] David Gershon has been doing action research for over 30 years with a focus on large system transformation and behavioural change. Both his *Green Living* and *Low Carbon Diet* programs engage people in environmental action by setting out a variety of activities that can be done by individuals and households. Each household participates in the program alongside four to six other households ("eco teams"); this is meant to create a setting where peer support, leadership skills, team visioning and problem-solving, group accountability, and cooperation lead to high levels of participation. In terms of outcomes, the 20,000 people in the United States who participated in the *Green Living* program reduced their solid waste by 40%, water use by 32%, energy use by 12%, miles traveled in vehicles by 8%, and their CO_2 emissions by 15%. Not only that, but the changes were sustained, while 53% noted that they applied what they learned to their workplaces (see Gershon, 2010). A similar program, called *Climate Idols*, is currently being piloted in Canada and has also resulted in multihousehold participation in sustainability (www.climateidols.org).

The need for environmental educators

Researchers have found that educators play a crucial role in facilitating environmental learning, action, and values in their students, and beyond. For example, Paul Hart (2003) and Louise Chawla (1998) state that educators significantly influence learners, as well as help define their students' environmental sensitivities. Therefore, it is important that the educators within our educational systems support sustainability because, through their influence, they help determine the types of people their students become. In this sense, educators may be able to not only address the question of, "what kind of world are we leaving for our children and grandchildren?" but also, "what kind of children and grandchildren are we leaving for our world?" (Pickard, 2011, p. 98). Furthermore, because students discuss what they learn in school with their family members and are able to influence their parents' environmental behaviours (Istead, 2009; Kahn, P., 1999), "educators have the opportunity to expand the reach of their message by recognizing and utilizing more about the child-to-adult influence relationship" (Istead, 2009, p. 62). Therefore, learning and education go beyond teacher-student impacts and reach students' families as well. As such, Orr (2002) states that the impacts educators have on others highlights how significant it is for them to learn about, value, and participate in education that is pertinent to our collective future.

An educator's theories, experiences, and practices have been found to determine if and how they take up environmental education (Hart, P., 2003). For example, Paul Hart (2003) has suggested that environmental education is not simply passed on through curricula but that, "teachers construe their teaching in relation to nature, ecology, earth, and environment, as manifested in their personal beliefs, values, actions, and sense of self as a teacher" (p. 155). Furthermore, because, "people make meaning of their lived experiences by narrating those experiences" (Rossman & Rallis, 2003, p. 297), teachers have a great ability to knowingly and unknowingly pass on their experiences and values to their students through their teaching. Therefore, providing opportunities to educators that bring them to understand, value, participate in, and think deeply about environmental and social responsibility may lead them to better integrate sustainability into their teaching.

Unfortunately, it has been found that teachers are not always supported or encouraged to pursue environmental education (Hart, P., 2003). As such, although the number of educators who are promoting more ecologically-focused learning (in both in-classroom and out-of-classroom

settings) is growing (Sandlin & McLaren, 2009), there is still a deficiency of teachers who are involved in and trained to teach about environmental education (Hart, P., 2004; Wals, 2009). Furthermore, of the teachers who want to bring environmental learning into their students' educational experiences, many of them do not know how and/or feel isolated in their efforts (Hart, P., 2003). In general, the lack of support, encouragement, know-how, and community causes issues because, in order for a person to be motivated enough to pursue their goals (in the workplace, for example), they require the support and energy to fully realize them (Jensen, 2002). Therefore, if we are to advance formal educators' involvement in environmental education, it is essential that educators be supported in this area.

Conclusion

This literature review was meant to articulate and summarize the relationships between current literature and the objectives of the research as stated in Chapter 1. Therefore, the topics discussed in each section above provide an in-depth examination of environmental education in relation to: (a) sustainability, (b) participation in action, (c) engagement in critical thinking, (d) social learning and collective interaction, and (e) the role of formal education. For example, the literature review began by giving overviews of both sustainability and learning in order to demonstrate the need for learning-based solutions to address the social and environmental challenges we collectively face. This was followed by outlining the importance of sustainable action, as well as the work that has been done in the areas of personal and societal change. Next, a brief overview was given on how critical thinking is described in the research, as well as how critical thinking can contribute to sustainability. The section that followed drew on research in the areas of social learning, collective interaction, and family participation in sustainability in order to highlight the importance of working *together* towards sustainability. Finally, the last section of the literature review considered the important role that formal education and educators can play in fostering sustainability.

In exploring these topics, an exceptional body of research and literature was drawn upon from a number of different disciplines. For example, work was examined from areas such as: education (e.g., Hart, P., 2003; Fien & Lopez Ospina, 2004; A. Reid et al., 2008; Stevenson, 2002); environmental education and learning (e.g., Dyball et al., 2007; Fien & Lopez Ospina, 2004; Glasser, 2007; Hart, P., 2003; Hart, P., 2007; Orr, 2004); environmental action (e.g.,

Jensen, 2002; Jensen & Schnack, 1997; Kollmuss & Agyeman, 2002; Maiteny, 2002; McKenzie-Mohr & Smith, 1999); family environmental practice (e.g., Payne 2005a, 2005b, 2010; Grønhøj, 2006; Vargas, 2008); critical thinking (e.g., Kincheloe, 2004; Mason, 2008); social learning (e.g., Blewitt, 2006; Lave, 2009; Lave & Wenger, 1991; Wals, 2007; Wenger, 2009); environmental ethics (e.g., Jickling, 2004; Orr, 2002); consumption and education (e.g., Kahn, R., 2009; Sandlin & McLaren, 2009); community environmental education (e.g., Hostetler et al., 2008; Tilbury & Wortman, 2008; Gershon, 2010); motivation and environmental behaviour (e.g., Kaplan, 2000); and personal change (e.g., Locke & Latham, 2002; McKenzie-Mohr & Smith, 1999; Miller, 1998; Miller & Rollnick, 2002; Rogers, 2002 & 1995). The examination of and connections made between these areas provides a context for this research study. Most importantly, however, the literature review identifies the need for empirical studies that draw upon action, critical thinking, and social learning to foster sustainability, as well as highlights that it is at the level of family and community that environmental education should focus its efforts.

Chapter 3
Methodology and Procedures

Researcher Philosophy

Researchers' paradigms (also known as theoretical frameworks or philosophies) shape their research. This is done both intentionally and unintentionally in areas such as subject matter, language, methodology, methods, as well as in what the researcher perceives as ethical, truthful, and legitimate (Graham, 2005). A paradigm also includes embedded orientations to knowledge (*epistemology*), being (*ontology*), and ethics (*axiology*), which (implicitly or explicitly) determine decisions regarding research questions, frameworks, methodology and methods, and implications. The problem with adopting a particular paradigm though (e.g., *positivist*, *interpretivist*, *critical*, *deconstructivist*, etc.; see Lather, 2006), is that it tends to put the researcher and the research in a box when there may be a lot of value in drawing from many paradigms at once. For example, if, "philosophy is to research as grammar is to language" (Graham, 2005, p. 10), perhaps multiple "grammars" could draw upon one another to create a different type of "language," one that reflects interdisciplinarity and is multiparadigmatic. Although participants and researchers working in interdisciplinary programs, "should identify and use a core set of shared concerns to motivate the effort," they should also recognize the need for plurality and even allow for a certain degree of incompleteness (Lélé & Norgaard, 2005, p. 967). I identify this research as interdisciplinary, not just in discipline (e.g., having drawn from education, sociology, environmental studies, etc.), but also in paradigm.

While learning about the differences in paradigms that are employed by researchers, I came to realize that I relate to many different ways of knowing at once and, thus, am both within and between the boundaries of formally constructed orientations to knowledge. I believe I am most closely situated between the paradigms of *critical theory* and *interpretivism*. For example, in terms of critical theory, I use this research to ask how we should and can change the world and draw from the participatory action research methodology as a framework to try and make this change (see Lather, 2006, Table 2). That said, I also seek a rich description of the participants' contexts and understandings because I hold to the interpretivist belief that context provides meaning (Kelliher, 2005). Furthermore, I do not relate to *positivism* due to its belief in a single, objective truth that can only be found by using the scientific method (Kincheloe, 2004); rather, I

deem there to be multiple truths that coexist, many of which are outside the realm of science. Yet, I do highly value science (both natural and social) for its important contributions to society and for furthering our understandings of the world.

I tend to relate to *humanist* philosophies and ideas, which, in turn, impacts my research. Not only do humanist understandings emphasize that, "we cannot ignore the beliefs, intentions and desires of individuals because this would be to remove from them their subjectivity, to dehumanize them," but they also accept that human agency allows individuals to exercise their will (Graham, 2005, p. 26). Although I full-heartedly agree with this way of thinking, I would also argue that the degree to which individuals are able to "exercise their will" varies from person to person and from context to context. For example, no one person is able to make decisions outside of environmental and social influences, while the power differential that exists between individuals and groups can determine the opportunities available to them. Therefore, we cannot expect different people to possess the same degrees of agency, as a person's context highly affects what is possible for them to do.

Although I understand there to be a material world that humans exist within and, like the *realists*, believe it to exist beyond just human conceptions of it (Graham, 2005), at the same time I believe that the seeing, hearing, smelling, tasting, feeling, sensing, and understanding of that world is not objective because it will not be exactly the same for any two things on this planet. As postmodern scholars Laurel Richardson and Elizabeth Adams St. Pierre (2005) suggest, there are many ways to approach the world: "[like crystals that] grow, change[,] … are altered … [and] that reflect externalities and refract within themselves" (p. 963), the infinite ways in which people view the world depends on the angle from which they are looking. The multiplicity of ways of knowing and understanding is the reason why critical thinking is so important; to accept one truth without examining it in relation to others undermines the diversity of knowledges and beliefs that may be needed to solve complex issues and to ask intricate questions.

In conclusion, I (and, therefore, this research) do not fit nicely into one preestablished paradigm. I have been influenced by many philosophies and disciplines, which all impact my approach to research. I believe there to be value in this, as it lends itself well to interdisciplinary work. Ultimately, as long as we as researchers are honest with others (and ourselves) and acknowledge that we all have biases that will affect the work that we do, we can present a more truthful account of our research.

Participatory Action Research

From the outset of this research, I gravitated towards approaches that were participatory, action-oriented, and that prompted critical inquiry; therefore, components of a participatory action research (PAR) methodology were used to frame this research. Not only does PAR examine what people do and value, how people interact with the world and others, and how people understand and interpret the world (Kemmis & McTaggart, 2005) but, "because of its emphasis on inquiry, learning, and action to improve the community or environment," PAR can be geared towards collaborative and individual involvement in environmental change (Mordock & Krasny, 2001, p. 16). As a participant in C. Reid et al.'s (2006) study stated, "The value is being together, but the goal is to change the world" (p. 328).

PAR attempts to bridge the gap between individual interests and visions for the common good. For example, Læssøe (2008) states that having people reflect on, learn about, and examine what it is they want for themselves and others can allow people the opportunity to address issues that affect not only themselves, but their families and communities as well. Furthermore, participatory research can increase people's participation in change that promotes equity and wellbeing (A. Reid et al., 2008), as well as challenge, "oppressive social arrangements" (Fine, 2008, p. 216). Therefore, participatory approaches to research can motivate efforts that lead to the collective betterment of people's lives.

Projects framed by the participatory action research methodology often encourage their participants to set and accomplish goals that may help them improve their lives. For example, C. Reid, Tom, and Frisby's (2006) Feminist PAR program was designed to help low income women address key areas of concern in their lives, primarily social isolation and health issues. Through this process, varied and diverse actions were discussed and pursued on both individual and collective levels (C. Reid et al., 2006). Further, "some actions were achieved, others led to different forms of action outside of the FPAR context, and still other actions remained hopes for a broader action agenda" (C. Reid et al., 2006, p. 325). These findings suggest that PAR can encourage a diversity of actions in the present, as well as help participants envision future possibilities and goals. Furthermore, it can also be seen that the PAR process can lead to actions that are not directly linked to the project or study. To build on this, another factor that Colleen Reid and her colleagues (2006) ask us to consider is that, "Action was also an integral part of each research participant's life – it should not be falsely presumed that action begins once

women meet and share their experiences" (p. 325). Therefore, the PAR process cannot be seen as the only factor or catalyst that influences participants' actions.

Empowerment and participation are key components of PAR. For example, doing research for and with participants (e.g., altering research to meet the needs of people, involving participants in knowledge generation) has the ability to, "leave some participants with a sense of empowerment and trust in the ability of research to provide positive outcomes" (Mendis-Millard & Reed, 2007, p. 555). That said, despite best intentions, it has been argued that empowerment and participation cannot be separated from issues of power (Kesby, 2005; McKenzie, 2008b). For example, although participatory processes can be less oppressive than other methods (Kesby, 2005), there is always the reality in academic research that there will be power differentials between the researcher and the participants, or between participants (Dyball et al., 2007). As Broido and Manning (2002) state, "Despite any careful reflection and attention to reflexivity, there is always a space between researcher and respondents" (p. 442). A more equitable distribution of power may only occur if participants feel comfortable enough to express themselves openly throughout the research process. Of course, for varying reasons, this does not always happen. For example, as Reed and Peters (2004) have found, people do not tend to participate in the same ways nor to the same degrees. This is a reality that researchers face; however, neither the researcher nor the participants can or should force someone to collaborate or participate. For example, there is a difference between actions that are done due to pressure from other people and actions that are done as a conscious making up of one's mind (Jensen & Schnack, 1997). Habermas argues that legitimacy depends on people's ability to choose and decide freely in contexts of participation (Kemmis & McTaggart, 2005). Although this may prove impossible in real life contexts (McKenzie, 2008b), it represents the importance of aiming for democratized research. In general, although PAR can be used to foster a greater sense of empowerment and participation than other methodologies, it is important to consider that participatory and social action processes are not considered value-neutral (Brydon-Miller, 2001; McClaren & Hammond, 2005; Tolman & Brydon-Miller, 2001), nor power-neutral (Broido & Manning, 2002; Dyball et al., 2007; Kesby, 2005; McKenzie, 2008b).

As much as this particular research study was meant to be participatory, there was the challenge of, "changing the role of the researcher from an expert (who has control) to a facilitator (who shares control with community members)" (Mordock & Krasny, 2001, p. 19).

For example, by facilitating the PAR process, creating the interview and focus group questions, and providing information and action resources, I determined the types of knowledge, learning, and values that participants were exposed to (Læssøe, 2008). Furthermore, I did, "not completely shift the power relationships that underlie the production of knowledge in academic disciplines … [I still] initiate[d] projects, define[d] starting parameters, shape[d] data collection and interpretation, and [took] the major role in writing up results" (Reed & Peters, 2004, p. 14). In spite of this, by no means was I using research to push a "this is the 'right' way" agenda on participants, as creating more sustainable communities requires that citizens think critically about not only research and researchers (Reed & Peters, 2004), but about themselves, their social groups, the media, organizations, companies, political and social structures, complex sustainability issues, and so on (Tilbury & Wortman, 2004). I have also attempted to reveal throughout Chapter 3 the intentions, assumptions, and ethical implications embedded within myself and the research (McKenzie, 2008b) in order to portray a more honest account of the research process and design. To decrease power inequalities between myself and the participants (as well as between participants), I tried to provide everyone with opportunities to be heard, kept up regular communication with participants throughout the research, as well as set up "ground rules" during the first focus group (see Appendix G).

Using a participatory action research methodology as a framework for this study helped to fulfill the intentions and structure of this research. For example, the study reflected the PAR methodology by focusing on: participation *with others* in action, learning, and critical thinking; setting and working towards collaborative goals; participation in change; and reflection on actions and outcomes (Kemmis & McTaggart, 2005). Furthermore, because researcher facilitation is a central part of the PAR process, I facilitated the study in order to help participants learn, "to rethink and take decisions and actions aligned with sustainability" (Tilbury, 2007, p. 128). Not only that, but although participants in this study were provided with some information and guidance, they were also given both the power and responsibility to look for and provide themselves with their own answers, share what they learned with others, as well as pursue actions that they were interested in. Furthermore, I highly encouraged participation with and alongside others, for the reasons that, not only does learning occur as a collective process (see Chapter 2: Social learning), but people may also become more able and willing to address important issues when social support and pressure are present (Kemmis & McTaggart, 2005).

Lastly, the methods used (see Chapter 3: Methods of data collection) helped to fulfill PAR's objectives of, for example, fostering critical thinking and reflective dialogue amongst participants, encouraging action, and leading to family collaboration. Overall, using components of a PAR methodology not only encouraged participants to become self learners and teachers (as well as cooperative learners and teachers), but also built up the participants' capacities to think critically, generate and share new knowledge, and apply what they learned to their everyday lives and practices (Glasser, 2007). All this said, due to a study period of only five months, a full PAR approach was difficult to achieve. For example, although qualitative methodologies such as PAR demonstrate the importance of involving participants in the research process and outcomes (Reed & Peters, 2004), the participants in this study were not included in the development of the research objectives, nor in data collection or analysis. Therefore, it cannot be said that this research fulfilled all aspects of a participatory action research methodology.

Study Design

Location

Saskatoon was chosen as the location for this research primarily because, having grown up and lived in Saskatoon the majority of my life, I am very familiar with the community, as well as its services, politics, businesses, and environment. I felt that starting in a place that I knew and understood well, rather than entering into a community that I was not familiar with, would give the study more local validity.

Another important reason I felt it was important to focus on Saskatoon was due to the impacts its residents are having on the environment. For example, Saskatoon's residential sector used 31% (340,100 MwH) of the city's energy in 2005 (City of Saskatoon, 2005) and 45% (581,906,120 cubic feet) of the city's water in 2009 (City of Saskatoon Utilities Services Department, Email correspondence, Nov. 2, 2010). Furthermore, the residential sector generated the greatest amount of garbage in the Saskatoon Landfill in 2006 (a total of 54%) (City of Saskatoon, 2007), which is perhaps due to the fact that, "77% of total residential waste is still going to the landfill, about 780 kg per household, every year" (City of Saskatoon, 2010, p. 1). In addition, the province of Saskatchewan has, "the highest rate of growth in GHG [Greenhouse Gas] emissions in Canada," partly due to its reliance on fossil fuel based power generation (SaskPower, 2008, p. 14). Lastly, it should be noted that residents, as users and/or employees of

the commercial and industrial sectors, are linked to the environmental impacts of those sectors as well. Clearly, the residents of Saskatoon have a large role to play if we are to see a decrease in resource consumption, energy use, and waste.

Participants

The research was advertised through posters, emails, and word of mouth. The participant recruitment posters (see Appendix E), which were designed in accordance with the University of Saskatchewan's Ethics Board requirements, included a brief summary of the research and indicated that there would be remuneration for participation. Between May and July, 2010, these posters were posted on the City of Saskatoon's designated outdoor areas (according to the City of Saskatoon's Poster Bylaw, No. 7565), as well as in public libraries and a few businesses. Information publicizing the study was also emailed to numerous individuals and organizations in Saskatoon (e.g., We Are Many, The Saskatchewan Eco Network, The Regional Centre for Expertise on Education for Sustainable Development); some were willing to forward the information on to others. Twenty people responded to the recruitment materials regarding participation. However, five households were chosen based on the following criteria: they would participate fully in the program; they were living in Saskatoon; they self-identified as a family (there was one exception – see Footnote 6); and at least one family member was an educator. Once the participants agreed to participate, they signed consent forms, which were designed in accordance with the University of Saskatchewan's Ethics Board requirements (see Appendix C).

There were five Saskatoon-based households that participated in the research program (17 participants in total).[5] The households self-identified as families and each family member agreed to participate.[6] The reason for household participation was because a main goal of the research was to study how collective dynamics within the home affect environmental action, thinking, and learning. In particular, by having all family members within a household participate in the study, it was expected to guarantee a higher level of support, understanding, and effort than if only one individual within the household was participating (Payne, 2005a).

[5] Had there been more than five households, it would likely have changed the dynamics of the research, been more challenging to facilitate, and detracted from the connectedness of the group.
[6] A single participant expressed interest in participating (Josh Woods). He felt that he and the other participants could benefit from his involvement in the study; therefore, he was welcomed to participate in the research.

An aim of this research was to have a variety of families and individuals represented. For example, it was hoped that there would be diversity in age, gender, and household structure (e.g., single-parent families, households representing three generations). Furthermore, the inclusion of diverse cultural backgrounds (e.g., First Nations, Métis, immigrant decent) was seen as important because, not only does one's background influence learning (Tilbury & Wortman, 2008), but it also impacts the degree to which one faces environmental degradation and inequity (MacGregor, 2006). Unfortunately, however, there was a low amount of diversity amongst the people in the research. Although gender proved to be quite equal (with 9 males and 8 females represented), there were no single-parent families, all families were middleclass, four of the five households were Caucasian, and there were no grandparents living with any of the families, which meant that that generation was missed completely (the ages in the study ranged from 7 to 45).

Although a greater diversity of participants was hoped for, the households in the study did vary somewhat in structure. The Frost family included two parents, Mark (age 45) and Laura (age 36), one daughter, Johanna (age 13), and three sons, Gale (age 11), Nicholas (age 9), and John (age 7).[7] The Frosts self-identified as Muslim. The Lake family included two parents, Jason (age 33) and Jackie (age 33), a daughter, Mia (age 14), and son, Miles (age 12). Jason Lake was not Mia Lake's biological father. The Browns also included two parents, Max (age 37) and Winn (age 36), as well as two daughters, Lily (age 11) and Anna (age 10). There was one couple who participated in the study, Norah (age 28) and Scott (age 28) Rose, as well as one single participant, Josh Woods (age 30). For more details regarding the participants, see Figure 1.

The consistent variable between households was that at least one family member worked as an educator. This choice was made due to the fact that educators are generally role models, disseminators of information, and facilitators of learning within their communities. Therefore, including educators in this research was done in the hopes that environmentally responsible knowledge, values, and skills would enter the complex exchange between teachers, students, parents, families, and communities. The educators in the study included: Laura Frost (36), an educational program developer for her Community Association; Jason Lake (33), a substitute teacher; Winn Brown (36), a curriculum developer and former high school teacher; Norah Rose (28), an elementary school teacher; and Josh Woods (30), a high school teacher.

[7] Pseudonyms have been used for both surnames and given names to protect the identity of participants.

Figure 1: Participants

Surname*	Given Name*	Age**	Gender	Role in Education
Frost	Mark	45	Male	
	Laura	36	Female	Community Association program developer
	Johanna	13	Female	High school student
	Gale	11	Male	Elementary student
	Nicholas	9	Male	Elementary student
	John	7	Male	Elementary student
Lake	Jason	33	Male	Substitute teacher
	Jackie	33	Female	
	Mia	14	Female	High school student
	Miles	12	Male	Elementary student
Brown	Max	37	Male	
	Winn	36	Female	Former high school teacher; curriculum developer
	Lily	11	Female	Elementary student
	Anna	10	Female	Elementary student
Rose	Norah	28	Female	Elementary teacher; Graduate student
	Scott	28	Male	Undergraduate student
Woods	Josh	30	Male	High school teacher

*Pseudonyms have been used for both surnames and given names to protect the identity of participants.
**Ages as of Sept. 2010.

The participants in the study indicated that they had heard about the research through forwarded emails, word of mouth, and from the public library posters. Jason Lake (33) invited his neighbour, Josh Woods (30), to participate; this led to Josh's involvement in the study. Coincidentally, two families in the study were related, although they had not known about one another's participation until after they had signed up. Although I had met two of the participants prior to the study in encounters unrelated to my role as a graduate student, I was not well acquainted with them. I did not know any of the other participants prior to the start of the study.

Methods of data collection

A combination of data collection methods was used to gather personal, family, and community responses during the research. These included household interviews, multihousehold focus groups, and personal action journals. Due to the fact that all methods have particular strengths and weaknesses, as well as illuminate different types of responses (McKenzie-Mohr,

2012), the use of multiple methods (triangulation) was used to gain a better understanding of the participants' actions, thinking, interactions, and learning.

Semistructured family interviews

Two semistructured family interviews were conducted with each household based on the developed interview protocol (see Appendix F). One took place a month and a half into the study (October 2010) and one at the end (January 2011) (to see the full Timeline, see Appendix B). Interviews were tape-recorded, 70-90 minutes in length, and held (with permission) at the participants' homes. The interviews were conducted with all the family members present in the hopes that this would foster discussion, support, and understanding between family members. Participants also felt it was nice to have this time to discuss things as a family. As Max Brown (37) mentioned, "I think these meetings were really important, I think because we have a lot to say and you're necessarily restrained in the larger group setting."

The interviews were meant to monitor participants' actions and allow participants to reflect on their lives and day-to-day decisions. Participants were asked to talk about their goals, achievements, concerns, and challenges, as well as their experiences being in the research. During the first interview (see Appendix F), participants were asked to explain the photos they took for the photovoice project (see Chapter 3: Photovoice), as well as the action goals they set for the study (see Chapter 3: Goal setting). They also discussed the types of environmental actions they were engaging in before the study (see Appendix K) and the types of barriers and supports in their lives that affected their abilities to participate in environmental action. During the last interview (see Appendix F), participants were asked to discuss whether they had accomplished the goals they set out for themselves, if they planned to maintain the actions they had started or pursue new goals, what types of roles different family members played during the research process, and what their biggest successes and challenges were throughout the study. Participants also gave feedback on the research study.

Semistructured participant focus groups

Three semistructured focus groups were held that brought all five households together.[8] These were conducted based on the developed focus group protocol (see Appendix G). The first focus group took place in mid-November 2010 (a couple of weeks after the first family interviews), the second in early December 2010, and the third in mid-January 2011 (prior to the last family interviews). To see the full Timeline, see Appendix B. The focus groups were tape-recorded, three hours in length, and held at the Core Neighbourhood Youth Coop (an alternative education facility in Saskatoon; see www.cnyc.ca for details).

The intent of the focus groups was to provide participants with group support and a forum where questions, concerns, challenges, successes, and knowledge could be raised and exchanged. Furthermore, the participants in this study confirmed what other research has shown: People find value in participating with others because they are able to discuss shared problems, realize they are not alone, and feel a sense of inclusion (C. Reid et al., 2006). The group setting also encouraged different perspectives and ideas to come forward, which was important because, "to reflect on ourselves and our practices, we need catalysts that can help us see what would otherwise be invisible to us" (Dyball et al., 2007, p. 185).

The first focus group (see Appendix G) was primarily to allow the participants time to discuss the concept of sustainability and envision the type of future they wanted for themselves, their families, and other people and species (see Figure 2). This was meant to encourage participants to think collectively about what they wanted to see happen in the world and how that related to their ideas of sustainability. The second focus group (see Appendix G) dug a bit deeper into the environmental issues that concerned participants. Not only that, but they were asked to discuss how they felt social circumstances (income, gender, location, etc.) might affect people's abilities to participate in sustainability. During the third focus group (see Appendix G), the participants were encouraged to reflect on their experiences in the research (e.g., Did they accomplish their action goals? What did they find to be the most meaningful part(s) of the study?). Time was also dedicated during each focus group to discuss what actions participants were attempting to do and what they were experiencing while trying to incorporate environmentally responsible action into their lives.

[8] The Frost household was unable to attend the first focus group and the Roses were unable to attend the second focus group. Instead, they discussed the questions with their family members on their own time and submitted their answers in writing.

Each focus group was broken into three parts: all 17 participants were together for the first 45 minutes, they were then split into smaller groups for an hour (a different combination of people each time), and then they were brought back together for the last hour. Each focus group had an allotted break/play time of 15-20 minutes. Healthy snacks and refreshments were made available. A colleague was also present to help with set-up and takedown, as well as to facilitate the breakout group discussions if needed (many times the breakout group discussions were facilitated by participants).

A set of procedures was presented during the first focus group to help ensure that participants were respected and felt comfortable (see Appendix G). There was also a "Resources" poster and a "Come back to it later" poster. The former was for participants to write down resources they felt other participants might find helpful (e.g., books, websites, organizations), which was used a number of times. The latter was to write down ideas or topics that, if there was not time to discuss them at the time they came up, the group could come back to later. The "Come back to it later" poster was only used once.

Personal journals

Participants were asked to keep individual action journals based on the developed journal protocol (see Appendix H). They were encouraged to write on a regular basis (in any format they chose). Although some participants did journal regularly, others felt it difficult to write often and three of the children did not complete any entries at all. The journals were kept private from other family members.

Participants were asked to write about the environmental actions they were attempting to pursue, as well as to reflect on their lives and the process of change (see Appendix H). Many used their journals to express what it was like to try to live more sustainably, which included challenging and frustrating experiences, but rewarding and inspiring moments as well.

The journals highlighted important experiences and perspectives, as well as shed light on the types of activities that participants were trying to engage in. The journals also provided some participants with a very valuable outlet for critical thinking. As Josh Woods (30) stated:

> It made me start thinking about thinking. How you're growing through the experience. … Having the journal helps kind of keep a record of all the things I've been doing and I can go back and be like, "Oh, look at what I've accomplished!" … I appreciated that.

Ultimately, the journals acted as reliable documentary tools because they provided a clear picture of events, identified the frequency of activities and occurrences, and offered perspectives that were not always present in interviews, focus groups, and other observations (Kelliher, 2005).

Other

The following factors were used in the structure of the research study: photovoice, goal setting, action and informational resources, and monetary incentives.

Photovoice

Participants were asked to photograph, as a family, what actions they felt they were doing that were "more sustainable" and "less sustainable." This was done in order to personally connect them to their actions (and inactions), as well as engage them in the process of reflection and critical thinking. Photographs were primarily taken within the first two weeks of the research study[9] before the participants began to set goals (see Chapter 3: Goal setting) or locate environmental action and informational resources (see Chapter 3: Action and informational resources). This was done so that participants might use what they had learned during the photovoice component of the research to develop their action goals, as well as think critically about their actions without the influence from other sources. The number of photos that were submitted ranged from 13 to 92 per household. To see a small collection of the photos taken, see Appendix L.

Although participants were not asked to provide written narratives for their photos, they were asked during the first interview to reflect on them (see Appendix F). For example, what types of photos did they take? Did the process prompt discussion between family members? Did everyone agree on the meaning of the photos taken? Participants were also asked to choose a few photos for discussion during the second focus group (see Appendix G).

[9] However, some participants included photos that they had taken prior to the research, while others took photos throughout the study.

Photovoice has been used as a popular participatory action research method in many health and community based projects (Lockett, Willis, & Edwards, 2005; Wang & Pies, 2004). Although a full photovoice approach was not used in this research (e.g., it was not used as a method, written narratives were not added to the photos, the photos were not put on public display or used to reach policymakers; see Wang & Burris, 1997), taking photographs was still important. Not only do photographs inspire dialogue, but they also, "simultaneously depict actual persons, places, and things, and *also* the photographer's relationship to them. Because photographs are not mediated by language, they offer … the opportunity to represent their experience and perspective in a relatively immediate way" (Rudkin & Davis, 2007, p. 109). Furthermore, the process of taking photographs can prompt action because it, "alters the photographer's relationship to her or his surroundings," and helps the photographer identify, "arenas for intervention" (Rudkin & Davis, 2007, p. 119). Therefore, although photovoice was not used specifically as a method in this research, the family photography project that participants were asked to take part in reflected the values of photovoice, as it was used to link the participants to action, knowledge building, critical dialogue, reflectivity, and community (Wang & Burris, 1997).

Goal setting

After the photovoice activity had been completed, participants were asked to write down a list of environmentally responsible action goals that they and/or their family wanted to try to achieve throughout the course of the research (to see the full Timeline, see Appendix B). They were encouraged to write down goals they hoped to achieve after the study ended as well. Once this initial list was created, participants were asked to attempt to accomplish these goals throughout the course of the research. Many of the goals that the participants set were achieved, to varying degrees, throughout the research (to review the goals that participants set and achieved, see Table 1).

It has been suggested that integrating goal setting into programs that wish to foster change may increase people's commitment to action (McKenzie-Mohr & Smith, 1999). As participants in this study expressed, goal setting helped them stay task-oriented, monitor their own progress, and focus on what they had set out to do. McKenzie-Mohr and Smith (1999) also suggest that, because people care about how they are viewed by others and tend to want their

actions to be consistent with what they tell others they are going to do, people are more likely to honor commitments that they have made publicly. Therefore, having participants share their goals with me and their family members during the first family interview, as well as discuss some of them during the participant focus groups, may have played a role in influencing participants to act in accordance with their goals.

Action and informational resources

Participants were offered environmental action and informational resources during their initial meeting (see Appendix B). The action resources that were provided focused on ways in which one could minimize energy use and resource consumption, as well as support ethical purchasing (see Appendix I). These resources were provided because, "Messages that describe actions to be taken in clear, straightforward steps are more likely to be understood and followed" (McKenzie-Mohr & Smith, 1999, p. 93; see also Gershon, 2010). Resources that included information about current environmental issues and human impacts were also made available to participants (see Appendix J). The action and informational resources came from various sources: government, nongovernmental organizations, academia, energy/power providers, blogs, and how-to sources.

The variety of resources provided were meant to help participants set goals that were both environmentally responsible and personally desirable, as well as think about and discuss environmental issues and actions. The materials provided were not meant to be understood as providing the only "right" answers, nor were participants required to use or review them. In fact, the majority of participants did not refer to the resources provided. This suggests that (a) the participants may already have had ideas of what they wanted to change and/or learn about prior to the study, (b) their previous knowledge or photovoice projects may have provided them with the insights needed to develop their goals, (c) prescriptive resources may not have been necessary in this particular group of people, and/or (d) as the literature suggests, a lack of knowledge may not be the largest barrier to environmental action (see Chapter 2: Formal education and sustainability).

Monetary incentives

Each family was provided with up to $500 for the purchase and/or rental of resources that would engage them in environmental learning or action. Two households used the total amount (the Frost and Woods households), two households used a partial amount (the Lakes and Roses), and one family did not use any (the Browns).[10] Of the money spent, most was used on books. Also purchased were supplies needed to start a vermicompost, materials to build a composting toilet, and an energy monitor. In addition to the $500 set aside for resources, each household was given another $500 upon completion of the program; it was felt that this amount of money would encourage participant retention and fairly compensate participants for their time and involvement in the study (this research required a considerable time commitment, see Appendix B).[11] Participants were encouraged to use this money towards achieving future environmental goals; however, the use of this money was at the discretion of the participating families. Many of the participants felt that the financial incentives did, in fact, impact their decisions to join the research. However, none of them expressed that the money provided was their primary reason for joining the study, instead seeing it as more of a "perk."

Logistics

Budget and timeline

For the research budget, see Appendix A. For the research timeline, see Appendix B.

Ethical Considerations

As with all research, there were ethical implications to be considered. Therefore, I ensured that this research complied with the University of Saskatchewan's Ethics Board requirements (see Appendix C), as well as gave particular attention to the areas identified below.

There was the potential that involvement in this research study might have only given participants a sense of the environmental issues they were facing without the means to tackle them (Nelson & Wright 1995 as cited in Kesby, 2005). Arguably a form of disempowerment, this was considered before conducting the research. For example, I attempted to foster an

[10] The Browns felt that the actions they wanted to pursue did not cost money (e.g., walking more, building a bee hotel out of an existing log in their backyard, conducting a waste audit, accessing information from the library or online).

[11] This amount of money was approved by the University of Saskatchewan's Ethics Board.

approach that provided those affected by the decisions (the participants) with the critical capacity, decision-making power, and support needed to find answers and take action on their own. Not only that, but they were asked to set goals that they were interested in working towards with the hopes that this would give them a greater degree of autonomy. Ultimately, research and researchers have a responsibility to participants; therefore, efforts were made to empower, rather than disenfranchise, those involved in this study.

There are ethical components to be considered when a research study has the ability to impact participants' personal lives, family dynamics, and social networks. In the case of this research, there were concerns that the program might result in added stress for the participants. For example, there was the potential for emotional distress due to added responsibilities for certain, if not all, family members (e.g., additional work for women; see Reed & Mitchell, 2003). There was also concern that participants would feel as though they should take on more than what they were reasonably able to manage. For this reason, participants were not required to achieve any particular outcomes (e.g., they were not told they had to do A, B, and C) but were instead left to participate as they saw fit. There were also risks associated with having participants try new things and placing them in circumstances outside of their comfort zones. As Maiteny (2002) explains:

> According to Oscillation Theory, changing deep-rooted habits of thinking and acting requires often painful experience and discovery of fresh frameworks to make sense of that experience and generate insights. The process is analogous to action learning. When a person attempts to put their new perspective into practice, feelings of guilt, frustration and hypocrisy can result. (p. 304)

To elaborate on this, the research could have left participants feeling confused about or upset with the way they lived because, as Patterson (2006) argues, examining our consumptive everyday actions, "reveal[s] very complex dialogues and transactions to do with identity, status, aspirations, cultural capital, and position within a social group" (p. 7). These potential issues highlight how research that is focused on change can lead to stress (and *distress*). As this should not be taken lightly, the participants were only asked to participate to the degree they felt able, as well as given the opportunity to discontinue involvement in the research at any time.

Due to the fact that this research focused on participation with others, another factor that was considered was that social activities and discussions can provoke disagreement and conflict.[12] For example, although, "meaningful family gatherings can inspire insights and even commitments to change" (Vargas, 2008, p. 207), this research risked bringing about family coercion (Eddy, Leve, & Fagot, 2001; Soenens & Vansteenkiste, 2010) or tensions between family members because, "despite our best efforts[,] … sometimes our families don't or can't cooperate" (Vargas, 2008, p. 175). Furthermore, just as this research could have caused disputes between family members, there was also the potential for disagreement to occur between participants because, "controversy … is an inherent part of environmental issues" (Kolstø, 2005, p. 222). Even though disagreement is not necessarily a bad thing, escalated confrontation was acknowledged as a potential occurrence and, thus, a set of guidelines were developed in the hopes that such situations could be avoided (see Appendix G). In general, it was important to consider the potential for participatory research to produce disagreement and dispute so that I could become more adequately prepared to appropriately and sensitively address confrontational situations.

Data Analysis

Inductive analysis

An inductive approach was used to analyze the data in this study. In other words, analysis was, "carried out through multiple readings and interpretations of the raw data" (Thomas, 2006, p. 239), which included (a) transcribed recordings of the interviews (see Chapter 3: Semistructured family interviews), (b) transcribed recordings of the focus groups (see Chapter 3: Semistructured participant focus groups), and (c) the information recorded in the participants' action journals (see Chapter 3: Personal journals). The participants' comments were recorded verbatim; therefore, the quotations used throughout the thesis are consistent with the participants' original language (whether spoken or written), including spelling and grammatical errors. After reviewing the data multiple times, categories were determined through coding.

[12] Despite the risk that disagreement and dispute could have occurred during the research, no conflicts took place nor did participants disagree very often. Although this should be viewed positively, it also means that this research risks painting each family and participant with the same brush. Of course, participants did, in fact, perceive household and community situations differently and their environmental knowledge, values, and skills varied. Furthermore, while there were some disagreements (e.g., what type of governance would best support sustainability, what the definition of sustainability was), these discussions remained respectful.

Significant themes (and links between those themes) were determined based on (a) their relevancy to the research study objectives and (b) what participants were saying. As Thomas (2006) states, "Although the findings are influenced by the [research] objectives or questions outlined by the researcher, the findings arise directly from the analysis/reading of the raw data, not from a priori expectations or models" (p. 239). After developing some initial codes, NVIVO 9 data management software was used to further refine and explore the themes.

The themes and findings that were developed through inductive analysis (see Chapter 4: Results) were not organized according to research method (family interview, focus group, or journal) or timeframe (beginning, middle, or end of the study). Rather, during the coding process, all the data were amalgamated and the findings were organized into key themes and significant areas of interest that came up *throughout* the research and that emerged *across methods*. In this sense, merging the data helped provide an overview of the most significant ideas, events, and discussions that took place during the research, regardless of how or when the data emerged.

Due to the methods used to collect data, it was difficult (and sometimes not possible) to (a) compare participant's individual perspectives on particular topics and (b) draw conclusions that were quantifiable. First of all, due to the group dynamics present in the interviews and focus groups and the flexibility allowed by the personal journals, the participants did not answer the same questions, nor explore ideas to the same degrees or in the same ways. For example, because the interviews and focus groups acted as informal, guided discussions between many (if not all) of the participants, this influenced how and if participants responded to the questions being asked. More specifically, while participants would at times take on leading roles in answering certain questions, at other times these same participants would not answer at all. Not only that, but rather than answer the questions directly, often participants responded to or built off what other participants were saying. Furthermore, because participants used their journals--as much or as little as they wished--to explore ideas and topics of their own choosing, the resulting data was not uniform. Therefore, it is difficult to draw conclusions comparing participants' individual perspectives on particular topics because of the great variance in responses. For this reason, as well as the fact that this was not a quantitative study, conclusions cannot be drawn that give a specific breakdown of how many participants held the same views (e.g., "50% held the view that…" or "11 out of 17 said…"). Rather, descriptors such as "some," "a couple," or "most" are

used in Chapter 4 to describe roughly how many participants seemed to share similar perspectives.

Building on this, it was difficult to determine if participants experienced changes in their thinking throughout the program. This was not only due to the complicated nature of drawing conclusions about each individual (as discussed above), but also because participants were not asked to answer the same questions during different phases of the research. For example, to allow time for a number of diverse questions to be discussed throughout the study, questions such as, "What is your definition of sustainability?" were only asked once, rather than at the beginning, middle, and end of the study. Therefore, although I had initially hoped to draw conclusions regarding how and if participants' thinking changed over the course of the research, the data that came forward were not sufficient to do so.[13] In conclusion, although there were many interesting findings that emerged from the data (see Chapter 4: Results) and benefits that resulted from using the chosen methods (see Chapter 3: Methods of data collection), the choice of methods also made it difficult to draw certain conclusions.

Interdisciplinarity

Analyzing interdisciplinary research data can be challenging. For example, interdisciplinary research, particularly that which links environmental and social factors, is not only difficult due to the complexity and enormity of these issues, but also because peoples' understandings, values, and approaches in these areas differ (Lélé & Norgaard, 2005). Therefore, researchers who wish to integrate varying disciplines and study the relationships between social and environmental systems may wish to approach their research by limiting their conclusions carefully (Becker, 1967), accepting a certain degree of incompleteness (Lélé & Norgaard, 2005), and acknowledging that the uniqueness of the participants (and themselves) may make findings difficult to replicate (Mertens, 2007; Thomas, 2006). These suggestions were taken into consideration throughout the data analysis process.

[13] To make up for a lack of data in this area, participants were asked during the last focus group and last interview to identify whether they felt they had changed and, if they did, in what ways.

Legitimacy

The legitimacy of research is highly determined by the people affected by and participating in the study (Chilisa, 2005); therefore, participant checks (otherwise known as member or stakeholder checks) are important to the credibility of research (Lincoln & Guba, 1985). As such, participants in this research were (a) given the opportunity to review their interview and focus group transcripts after they had been typed, (b) asked to identify the main themes they felt arose throughout the research during the last focus group, (c) given a description of the coded themes to review once they had been developed, and (d) given the opportunity to review a final draft of the thesis--or meet to discuss it--before a final copy was submitted to the advisory committee and an external examiner. Josh Woods (30) and the Brown family reviewed a final draft of the thesis and stated that they felt the findings were accurate.

Transparency

It is important that a researcher be as transparent as possible regarding how their research was developed and analyzed; therefore, the following discussion provides a more detailed account of my research process.

The objectives I initially developed to guide this research were organized around the themes of environmentally responsible action, the supports and barriers to sustainability, and family participation in sustainability-focused change. This initial framing of the research heavily guided (a) the direction of the literature review, (b) how the study was designed, (c) the methods that were used (including the questions that were developed for the interviews and focus groups), and (d) the methodology that was chosen. This undoubtedly had an impact on how participants approached, experienced, and responded to the research and, in turn, influenced the findings of the study. For example, there are large amounts of data regarding the barriers and supports to sustainability, as well as the actions taken by participants (and their experiences linked to these actions). Furthermore, discussions around family emerged frequently throughout the study. The large focus on these areas by participants can likely be explained by my initial objectives of studying action, sustainability, and family. Therefore, although data analysis was inductive, the findings that emerged fall quite significantly into the initial themes that the research was designed around.

Although the scope of my research did not change greatly from start to end, my research objectives and literature review were refined throughout the three years of my graduate degree as my learning was influenced by multiple sources. For example, throughout the course of my studies, my research objectives transformed to include a larger focus on social learning and interaction, critical thinking, and formal education and educators. Although they had been considered somewhat from the onset of my study, the significance of these areas became more apparent as I took classes, explored new literature, and discussed ideas with friends, family, and colleagues (particularly my supervisor). As a consequence, I began to consider the areas of social learning, critical thinking, and formal education more deeply in relation to my research. The importance of including these areas in my research became even more apparent once I began working with my research participants. I found that they talked often of the need for people to critically think about their actions and worldviews, the value of community, and the issues and opportunities surrounding the current education system. Furthermore, as my own learning and understandings developed over the course of my graduate degree, so too did my literature review. For example, although the first drafts were written prior to working with my participants and limited primarily to the areas discussed in the paragraph above (action, sustainability, and family), I continually updated my literature review as I was exposed to new ideas and further sources. In sum, although the relationship between my research objectives, literature review, and findings cannot be understood linearly, I have at least tried to give an honest account of how my research developed over the course of my degree.

Chapter 4
Results

For this research, a Saskatoon-based family environmental education program was developed, piloted, and analyzed. The objectives were to engage the participants in sustainability through action, critical thinking, and social learning, as well as provide an in-depth examination of participants' (a) understandings of sustainability, (b) participation in action, (c) engagement in critical thinking, (d) social learning and interaction, and (e) perspectives on formal education.

The results of the study are presented below in five sections. The first section, *Sustainability*, explores participants' definitions of sustainability and environmental responsibility, including what they felt to be the biggest barriers and supports to sustainability. The section concludes by exploring whether participants felt a societal transition to more sustainable ways of living is occurring. The second section, *Action and Change*, starts by reviewing the actions that participants pursued and the goals they set, as well as what they identified to be their biggest successes and "failures." Following this, there is an examination of the challenges and supports the participants encountered as they attempted to act. The section ends by questioning whether the participants' actions can be linked to their involvement in the program, as well as whether the participants actions will be maintained now that the program has drawn to an end. The third section, *Critical Thinking*, identifies some of the ways in which critical thinking took place during the program, as well as how it increased participants' awareness and engagement in action in some cases. This section also highlights some of the participants' perspectives that, although critical thinking, reflection, and awareness are an essential part of sustainable living, as isolated efforts, they may not be enough to prompt action. The fourth section, *Social Learning and Collective Interaction*, explores the family and community dynamics present throughout the research, including the multiple ways in which family members and other participants influenced each other. Lastly, section five, *Formal Education and Educators*, highlights the participants' insights regarding (as well as experiences in/with) formal education. More specifically, it examines the comments made by participants concerning the importance of formal education and educators in furthering sustainability-focused learning and action. The findings in each of these areas are discussed in more detail below.

Sustainability

The discussion below is meant to give context to the research results by highlighting the participants' perceptions, values, and opinions regarding sustainability. In order to gain an understanding of participants' view on sustainability, participants were asked to discuss the definitions of both sustainability and environmental responsibility, as well as explain the challenges, barriers, opportunities, and supports of trying to live in accordance with them. In addition to this, many other insights regarding sustainability were raised during the focus groups and interviews, as well as in the participants' personal journals; these findings are brought into the discussion below as well.

Participant definitions of sustainability and environmental responsibility

The first activity that participants were asked to do upon meeting each other for the first time was a group envisioning exercise. This exercise--during which participants envisioned the future they wanted for themselves, their families, others, and other species (see Figure 2)-- was important in two ways. First of all, it gave participants the chance to share their worldviews with one another and come up with a number of collective hopes and dreams for the future; this led participants to get to know each other in meaningful ways. Secondly, the results of the exercise give context to the study because they not only help us understand the participants' views on sustainability, but also suggest why participants joined the research in the first place: they *valued* sustainability and the type of lifestyle they imagined it might provide. For example, while the participants were not asked to explain what they felt a *sustainable* world would look like, it can be argued that the hopes and dreams that the participants desired for the future fell under the umbrella of sustainability: nature; community; green infrastructure, technology, and economics; reducing, reusing, and recycling; quality of life; care for others; equity; balance; and health. Therefore, the envisioning exercise was important in that it not only helped participants build relationships with one another, but it also helped to establish the participants' values and understandings regarding sustainability.

Following the envisioning exercise, the participants were split up into two groups--adults and children--and asked to explain their definitions of sustainability. Although there were some differences of opinion that came up during the resulting conversations, many of the participants held the view that sustainability revolved around environmental, personal, and community health

Figure 2: Participant envisioning exercise

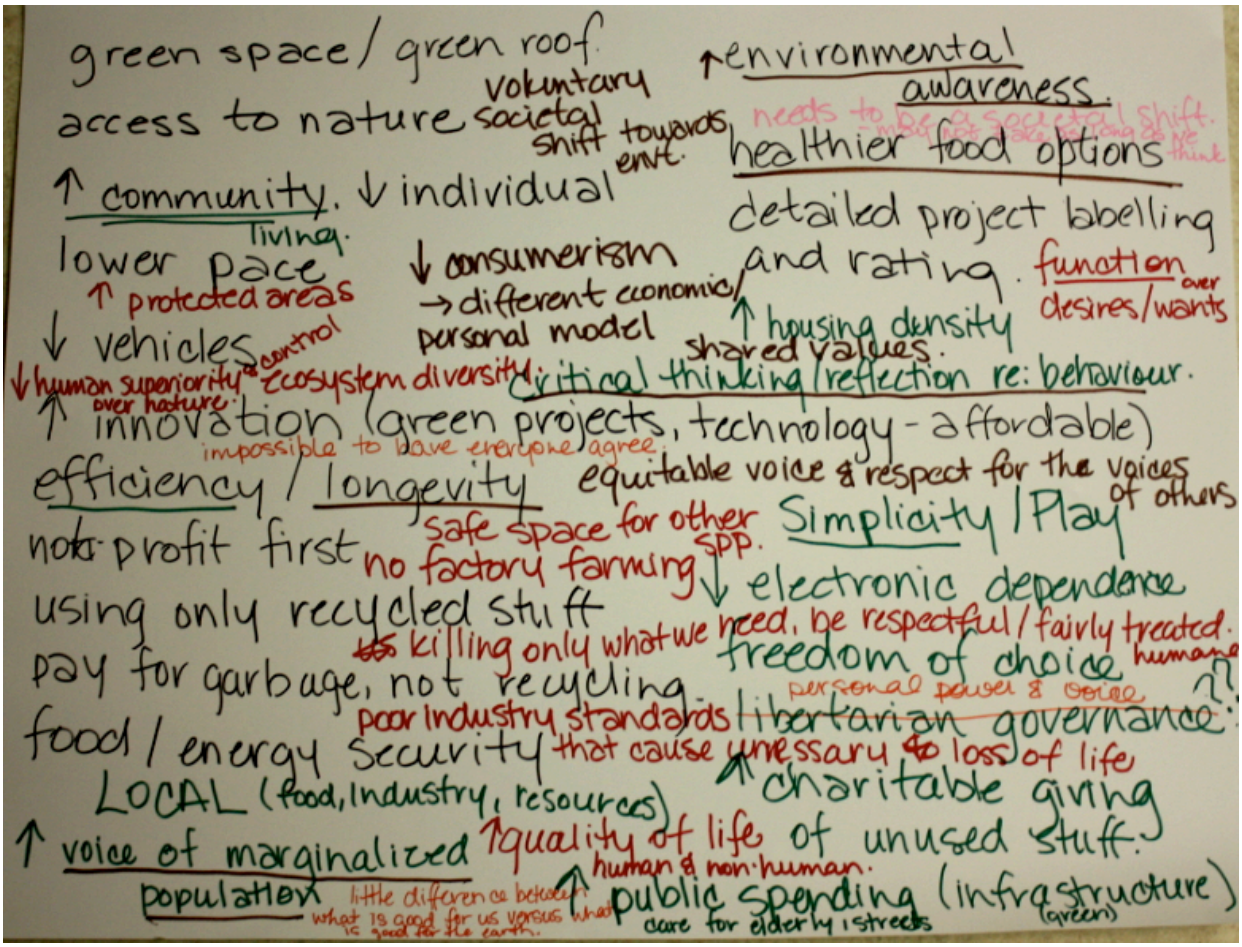

Figure 2: Participants identified the kind of future they wanted for themselves, their families, other people, and other species. Many of their visions for the future aligned with how they viewed sustainability.

and wellbeing. More specifically, the recurring areas that participants linked to sustainability were: responsibility (to other people and species, but also a general sense of responsibility); ecological integrity; mindfulness; balance (both personally and globally); quality of life; living in harmony with others and the world; and not using more than one needs or more than the earth can provide. Furthermore, during the children's breakout group, all of the youth mentioned the importance of tolerance, equality, and helping one's community. Anna Brown (10) built on these ideas by stating: "I think that sustainability equals being able to be happy while sustaining our whole environment, not just ourselves. And being able to have a healthy environment, not just an

environment, a healthy one." Another recurring area that was mentioned by some of the participants--both children and adults alike--was the idea that sustainability referred to a way of living that would not compromise future generations' abilities to meet their needs. For example, Josh Woods (30) said, "I think there is one understanding of sustainability and it is the ability to meet our needs without compromising the needs of future generations to meet their needs." However, Jason Lake (33) debated this idea on the premise that, "we can't stop from taking away from future generations nor can we know what their needs may be." This comment by Jason highlights the fact that sustainability is a challenging concept to grasp, a view that was expressed in various ways by many of the other adult participants as well. For example, as Max Brown (37) stated, because there is currently no "right" way of being sustainable, people do not have a common understanding of the term; therefore, this poses a challenge because people take up sustainability in different ways. His wife, Winn Brown (36), echoed this by saying, "there could be lots of diversity in how we approach sustainability." This confusion regarding sustainability also led some of the adult participants to express their concern over the term's ability to be used to green wash. For example, Norah Rose (28) explained how corporations manipulated the word sustainability in order to make them look good, even if their actions and values were not aligned with environmental and social responsibility. Ultimately, although participants did not develop or agree on one concrete meaning of sustainability, their discussions primarily focused on sustainability as a state in which a healthy environment, as well as a high quality of life for both individuals and communities, existed and was maintained.

Participants were also asked to define environmental responsibility during the first focus group. Participants primarily defined it as one's personal responsibility to act in ways that do not damage the environment. In addition to this, some of their comments were linked to the need for people to critically think, develop environmental values, and care for themselves and others. For example, during the youth breakout session, Lily (11) and Anna Brown (10) defined environmental responsibility as being responsible for your actions by considering the environmental impacts of your choices, while Miles Lake (12) gave specific examples of what he felt to be environmentally responsible actions: walking instead of driving; turning off the lights; and improving the waste disposal system. Furthermore, the Frost family also defined environmental responsibility in terms of action:

> Environmentally responsible means you are not damaging the Earth with what you are doing in everyday living. Sustainability means doing actions that will facilitate environmental regeneration. Environmentally responsible means no impact while sustainability means positive contribution to the environment.

Some of the participants' definitions were also linked to values and critical thinking. For example, Josh Woods (30) felt that being environmentally responsible required a person to act in line with their values, as well as think critically about their actions. Winn Brown (36) agreed, stating that we need to, "get to the point where we think about what our values are and question our actions against them." Although the participants' definitions revolved primarily around environmentally responsible actions--and the thinking and values that are needed to support these actions--one participant stressed the importance of linking environmental responsibility to social responsibility as well. As Jackie Lake (33) emphasized, "[it is] not enough to focus on what we're doing to the planet. At the same time we must focus on family, friendship, communities. What is happening to the physical world happens because we do not love and respect ourselves and each other." Therefore, although the participants' descriptions were to a large extent about acting in ways that prevented environmental harm, it was also acknowledged that these actions relied on one's ability to think critically, value the environment, and respect oneself and others.

The challenges and barriers identified by participants

Throughout the research, participants discussed the overarching barriers and challenges associated with sustainability. Most participants identified the current **economy**--and associated market--as the biggest issue facing sustainability. More specifically, the economy was criticized for its focus on: infinite growth and materialism; lack of long-term planning and holistic thinking; dependence on nonrenewable resources; employment of wasteful and polluting practices; and prioritization of money over social and environmental benefits. Some participants also coupled the economy and market with environmentally and socially damaging business, transportation, and food systems. For example, a few participants critiqued the current economic model for supporting an inefficient and wasteful production-distribution-disposal system (e.g., food is grown on unsuitable land in one part of the world, then shipped half way across the world to a region where it could more easily have been grown, and then goes spoiled in our grocery

stores and gets sent to the landfill). In addition to this, a couple of the participants felt that the market mentality fostered continual dissatisfaction with our lives and promoted values that led people, as Laura Frost (36) said, to, "focus more on what they have in their houses than what they have in their hearts." As one can see, the participants felt that the economy caused and perpetuated many unsustainable practices.

The **government** was also noted as one of the biggest barriers to sustainability. For example, many of the participants commented on the federal, provincial, and municipal governments' avoidance of making any progressive change. More specifically, areas such as infrastructure and policy were targeted as preventing certain environmental behaviours (e.g., cities prioritize automobiles over pedestrians and cyclists, while there are very few incentives for those who wish to recycle). As Winn Brown (36) stated:

> Even when public opinion polls have said that environmental issues were the second or first biggest issue for Canadians, which it has been in two of the last federal elections, the governments we have elected pay lip service to environmental issues and then don't follow through with it. And lots of times, the changes that need to be made can't be made by individuals. Like everybody in the room said, I wish I didn't own a car or that I could use my car less. The reality is that our [government] has made the decision that we will be a car-centric city.

This comment suggests that government support is needed, as large-scale change is very difficult (and sometimes not possible) to effect as an individual. Furthermore, even when some participants acknowledged the government for having made some environmental headway, they still believed it was not nearly enough. Therefore, the participants generally felt that there was much room for improvement at the level of government.

Another large barrier that was identified by many of the participants was that most **people are not involving themselves in sustainable action**. Although the majority of the participants made the critique that there is a general lack of involvement on the part of the public, they also identified specific people in their lives--family, friends, teachers, coworkers--for not being engaged, interested, or involved in sustainability. Participants listed a number of things they felt led to this lack of effort: people are complacent with the way things are, are too busy, do

not want added complexity in their lives, are waiting for others to act first, do not feel it is their responsibility to act, do not know what to do, do not understand or see the impacts of their actions, have other priorities or values, or are simply not interested. Although most participants were able to recognize that a number of factors play into whether or not people engage themselves in sustainability, they were still not satisfied with the general lack of involvement.

Building on the discussion above, some of the participants stated how **people's aversion to change** posed (and will continue to pose) a challenge to sustainability. For example, a few participants talked about how, when faced with change, people's first response is to resist it. As Mark Frost (45) said:

> Human resistance to change is a difficult thing to overcome. I have noticed this from this study and from the past. For example our adoption of recycling, until you form a habit you naturally resist the change. To move people towards environmentalism requires building positive habits. … A challenge then is how to develop these habits in individuals.

Jackie Lake (33) expanded on this by saying:

> I understand how hard it is to change your mind set on every little thing because when Jason came home and was all adamant about it, it scared the crap out of me. Like, for a long time we had fights and just uncomfortable conversations and lots of crying because I was picturing, "What do you want from me!?" … [Even the things that] now I'm ok with, at the time seemed extreme. Because it's hard to just, change.

As these comments suggest, some participants felt that people are generally change averse, which consequently prevents people from engaging in more sustainable ways of living.

Participants, primarily the children, talked about the challenges that **inequity and one's social circumstances** can place on one's ability to act. For example, the youth recognized sexism as preventing change. As Anna Brown (10) said, sustainability requires that we are able to work together and cooperate; therefore, "we're going to have to get over that barrier of 'men are more powerful than women.'" Similarly, Nicholas Frost (9) mentioned how religious barriers

can prevent female-male interaction, "because there are certain religions that don't allow boys and girls working together." The youth participants also noted racism, poverty, and poor treatment of minorities as problematic because people who are not of the dominant culture or who face difficult socioeconomic circumstances have less power to act and be heard. Furthermore, a person's social context(s) (e.g., location, upbringing, housing, etc.) came up as impacting how and if people participate in environmental actions. For example, Laura Frost (36) felt that having limited access to water, electricity, and other amenities while growing up in the Philippines influenced her choices (and ability) to conserve resources once she came to Canada. Furthermore, a few participants mentioned how people in apartment and condominium complexes face more barriers to sustainable living than those in houses, in that they do not have access to land for gardening or composting and face limiting policies (e.g., Scott (28) and Norah Rose (28) stated that one of their condo complex's policies prevented residents from hang-drying their clothes on the outdoor balcony). Overall, there were many examples given of how a person's social circumstances, particularly oppressive ones, impact one's opportunities and abilities to act.

In addition to this, some of the participants noted that the **communication and cultural gaps** that exist between different people pose a challenge when it comes to the dissemination and uptake of sustainability. For example, some of the participants commented on how, even when sustainable changes do occur at personal levels or amongst groups of people, these changes may not spread or be communicated to the rest of society because people are disconnected from one another (e.g., they do not interact with one another and are not exposed to one another's ideologies). Particularly the adult male participants expressed that living outside of societal "norms" often means that one's actions, ideas, and progress go unnoticed by others because they do not get mainstream attention. In other words, there is a communication gap because the status quo perpetuates the status quo and people are generally not pushed to consider anything beyond it. Jason Lake (33) also explained how, even if sustainable actions, ideas, and progress *do* reach the status quo, they risk being looked at as too radical to even be considered: "In the men's [focus] group, we talked about--it's like you take a step and it's still normal, and then you take another step and you're still normal, and eventually, without realizing it, you took that step that makes you 'that person at the party' that causes the dead silence." The disconnect between people in this sense is due, as Mark Frost (45) stated, to a "cultural gap." Mark went on to say

that the cultural gap that exists between those who are involved in the environmental community and those who are not needs to be dissolved in order to make progress in the area of sustainability: "I mean, we all live in our own very focused lives, [but] maybe there's some possibilities of dissolving some of those boundaries and maybe there's some possibilities for growth there." These comments suggest that people may not be engaging in sustainability due to the communication and cultural gaps that exist between those engaged in environmentalism and those who are not, a gap that likely needs to be bridged if we are to see progress in the area of sustainability.

In addition to these findings, the participants also discussed a number of challenges and barriers that they faced as they attempted to act more sustainably during the study. For example, a variety of factors made it difficult for them to act, such as: a lack of time and society's expectations of a high-speed life; the fact that sometimes life just gets in the way; inconvenience and poor access to environmental options; the difficulty of determining what actions would best reduce their environmental impacts; the fact that acting in environmentally responsible ways could, at times, be discouraging and unpleasant; the winter season; the high costs associated with some environmental actions; and their own forgetfulness. These areas are explored in more detail in the section below, *Action and Change*.

The opportunities and solutions identified by participants

Although participants identified many challenges facing sustainability, they also confronted these issues by offering up opportunities and solutions that they felt could help address them. One of the main solutions that participants felt held a lot of potential was to **make changes to the current economic system**. For example, many participants felt that the economic system could become more sustainable if it began to work within environmental limits, promote safe and fair working conditions, and reflect the "true" environmental and social costs of the things we consume (e.g., through lifecycle analyses or triple bottom line accounting). Another example given by many participants was that the economy has the opportunity to play a hugely supportive role in shifting us away from heavy reliance on fossil fuels and, instead, towards a system that harnesses energy from renewable sources and consumes less. As Lily Brown (11) said, "We live in a finite world with finite resources. And so we need to be able to limit them, and distribute them, and find other ways of transporting and working and doing other

things that don't need oil." Furthermore, becoming self-sufficient (particularly in the areas of energy and food security) was also identified by a couple of participants as something that could be encouraged more by the current economic system. This was seen as important because, as Josh Woods (30) stated, this could help minimize the negative effects of inefficient and wasteful production-distribution-disposal systems (see Chapter 4: The challenges and barriers identified by participants), as well as reduce potential crises if oil prices significantly rose or international food shipments suddenly halted. Overall, the participants felt that many opportunities existed for the economic system to play a larger role in addressing environmental and social issues.

Some of the participants also felt that sustainability-related issues could be solved through the use of **creativity and communication**. For example, some of the participants acknowledged that creativity and innovation could be used to demonstrate what is possible, engage people in positive habits, and make sustainability fun. Laura Frost (36) described what happens when you expose people to new ideas and possibilities: "When you kind of initiate that in people's brains, and you stimulate their creativity, it just keeps going and going and going. … They think more, like, 'what else can I do?'" Some participants also felt that communication (e.g., environmental messaging in media and marketing, informational materials, resources such as books and films) could be used to help increase public awareness and expose people to new ways of thinking about things. Mark Frost (45) stressed that *how* we communicate needs to be considered as well because, "it's how that message is presented that's what's important. You don't want to be alienating the people who want to be making changes." Therefore, creativity and communication were both seen as having the ability to further sustainability-related ideas, knowledge, and interest.

Many participants felt that addressing and preventing environmental and social issues required **great leadership**; therefore, this was another area in which they felt solutions could be found. For example, discussions arose frequently of the need for better leadership within government, which, to the participants, meant having government officials who were proactive and supportive of sustainability. More specifically, many participants felt that solving sustainability issues would require that there be people in politics who would provide the public with more green incentives (e.g., EnerGuide), build and develop infrastructure that supported environmental decision-making (e.g., green building codes, bike lanes), and create policies that encouraged (or at least did not penalize) environmental action (e.g., free curbside recycling, fines

for poor business practices). Furthermore, Winn Brown (36) was of the opinion that, "our government is responsible for the values that we have as a society." Whether one agrees with her statement or not (as Jackie Lake (33) said, "You don't think that's a chicken and egg situation?"), it demonstrates why Winn felt it critical to have leaders in politics who value sustainability. The majority of the participants also acknowledged the need for leadership at the level of individuals and communities. They suggested that if people of all ages and walks of life did their part, encouraged others to get involved, and engaged in forms of grassroots activism (e.g., environmental organizations, community gardens), then environmentalism would spread and gain the critical mass needed in order to create a new normal. As Josh Woods (30) said, "in terms of solutions, well, every one of us in this room and all sorts of people that are likeminded need to start assembling and forming that critical mass that can influence people in power to make those bigger decisions." Overall, it was acknowledged that great leadership--at political, personal, and collective levels--would lead to solutions that would successfully transition our society towards sustainability.

Workplaces, including schools, were also seen as having many potential opportunities to encourage and implement sustainable practices. For example, some participants suggested that, because people spend a large part of their time at their workplaces and are exposed to many ideas and practices there, opportunities exist for workplaces to encourage sustainable actions and values. Specifically, workplaces were seen as being able to address sustainability by: "greening" their operations; encouraging and providing support for employees to take up sustainability-related areas in their work and practices; promoting a healthy work-life balance; and playing a transformational role in the way we produce, consume, and dispose of materials or products (e.g., implementing a cradle-to-cradle model, adopting recycling and composting practices). Furthermore, all of the participants felt that there were opportunities for schools to address environmental and social issues as well (this is discussed in further detail in Chapter 4: Formal Education and Educators). Ultimately, Josh Woods (30) summed up the importance of having workplaces that are supportive of sustainability well when he said: "Everyone has a workplace where the same things are going on as in the school--dealing with recycling, waste, lifestyle choices--so that's a great place to [start and] share values."

The other factors that participants felt would lead to more sustainable ways of living are described in more detail in the sections below. For example, they felt that making strides in the

following areas would be hugely supportive: taking action to reduce environmental pressures (see Chapter 4: Action and Change); critically thinking about one's actions and impacts (see Chapter 4: Critical Thinking); building meaningful and supportive relationships (see Chapter 4: Social Learning and Collective Interaction); and encouraging schools and educators to take on a larger role in addressing environmental and social issues (See Chapter 4: Formal Education and Educators). In addition to these areas, participants also personally experienced numerous supports as they attempted to act sustainably throughout the research. These were identified as: family (see Chapter 4: The impacts of participating with family); other participants (see Chapter 4: The impacts of participating with other participants); the research (see Chapter 4: Linking participant action to environmental education and research); health benefits (see Chapter 4: Supportive factors encountered by participants as they attempted to act); emotional responses such as satisfaction and guilt (see Chapter 4: Supportive factors encountered by participants as they attempted to act); and helpful resources (see Chapter 4: Supportive factors encountered by participants as they attempted to act). These are discussed more fully in the sections below.

Sustainability: Are we getting there?

The discussion above raises the question: Did the participants feel that, generally speaking, we are on the path to sustainability? Although this is difficult to determine with certainty, I have attempted to explore the answer by breaking it into three parts. First, the participants generally felt that sustainability is not the norm so there are many barriers to "getting there," which left some of them feeling hopeless about the future. However, the second area to consider is that many of the participants felt that it is possible to adopt a new "normal" that replaces current norms that are unsustainable. Lastly, some of the participants gave examples that indicate that a new normal is already starting to take place. This suggests that, despite their uncertainties, they were able to identify areas that provided them with some indication that we are, in fact, "getting there." These areas will be explored further in the following paragraphs.

In terms of the first finding, it can be argued that the barriers to sustainability that participants identified earlier in this section are all linked to one overarching issue: living sustainably is not the norm, while living unsustainably is. For example, the challenges that participants referred to suggest that those who want to live in a more sustainable manner (as they did) have to *actively* change their habits and lifestyles, while, at the same time, go against the

most commonly accepted path. Not only that, but because unsustainable practices are being created and perpetuated by the norms of society, this can discourage and prevent people from acting in environmentally and socially responsible ways. As Laura Frost (36) said, those who want to live more sustainably are not being encouraged to do so and are sometimes even strongly *discouraged*. Furthermore, Mark Frost (45) talked of how the norms of our society can trap people into a life they do not wish to lead: "It's frustrating to think how much our lives are already set for ourselves and how difficult it is to shift from what you're doing already to doing something different." These difficulties left some participants feeling hopeless about the future. As Norah Rose (28) said during the first interview, "thinking at some point our planet's going to be so dirty that it's [*Pause*]. I just have a very apocalyptic vision in my mind and that just, that scares me. And that's what bothers me … the most." Ultimately, participants felt it difficult to change within a society that often did not support, encourage, or understand the changes they wished to make. This led some of them to question whether we really are "getting there."

Many of the participants suggested that if we adopt a new normal this could lead to the changes that are needed to become more sustainable. In other words, "Developing a sustainable society requires both shifting away from values which encourage unsustainable behaviours and also shifting toward values which promote sustainable practices" (Roseland, 2000, pp. 126-127). For example, Jackie Lake (33) explained how shifting away from or giving up certain norms, such as hyperconsumerism, can lead to a higher quality of life:

> We packed up a lot of our stuff … [and] life became more peaceful. And like, why? Just because we don't have all that crap sitting around. It doesn't make logical sense that you remove physical things and your life gets better but … the less crap you have, the more it's easy to be aware of what we really want out of life. And nobody really wants the stuff. But you don't know that 'cause you get sucked into what society sort of tells you that you want. … But if we don't have all our stuff … and we, you know, participate in group things [and walk out our] front door[s] … you're going to build a community.

This comment not only highlights how one's relationships with people can greatly outweigh one's relationships with their stuff, but that there can also be considerable benefits gained by changing or adopting a new normal. In addition to this, Mark Frost (45) explained that if

sustainability is to catch on, it is not enough to say what we should and should not do; we must offer people an alternative vision. For example, participants created an alternative vision during their envisioning exercise (see Figure 2). During this activity they were not only able to form their visions for a better future, but also articulate what could be gained by living according to this new normal (e.g., better health, a high quality of life, community). Therefore, although all of the participants were, at times, discouraged by current norms that perpetuated unsustainable practices and values, they were also able to imagine the possibilities and benefits that could come from new ways of living.

Many of the participants discussed how they had noticed societal transformations starting to take place that *encouraged* sustainable living. For example, a few commented on how the growing sustainability movement had increased public awareness and support. More specifically, Norah Rose (28) felt that, "there is a growing movement of people that really care," while Mark Frost (45) said, "[environmentalism] is a contagious thing and I find [that it] is top of mind for most individuals. It is very encouraging to see this beginning to happen." Environmental options were also seen as becoming increasingly popular, particularly in the area of food and consumer products. As Jackie Lake (33) said, "when I was a kid, there was no access to organic food. I didn't even know what that was. … And now it's popular. Societal shifts are happening. Snowball effect: goes slow and then rapidly speeds up as the numbers get bigger." Furthermore, Josh Woods (30) described how encouraging it was to know that groups of people were involving themselves in environmental solutions (e.g., pursuing green building techniques, developing renewable energy sources, and getting involved in environmental issues at the grassroots level). Therefore, although most of the participants did not consider "achieving" sustainability to be a simple task, they also gave examples of how sustainable living is starting to occur and gain momentum. This suggests that participants felt we are, perhaps, "getting there."

Action and Change

During the study, participants were asked to set goals and pursue environmentally responsible action(s) of their own choosing. The discussion that follows explores the outcomes in this area. First, this section examines how or if participants changed, and whether they took further action in the area of sustainability. Following this, the challenges and supports that the participants faced as they attempted to act more sustainably are outlined. Next, the finding that

taking action can lead to learning and further action is explored. The section concludes by discussing whether the actions that were pursued by participants can be linked to the research, as well as whether or not the participants will continue to act sustainably into the future.

Actions pursued by participants

The most significant finding in terms of action is that involvement in the program successfully encouraged participants to act. More specifically, throughout the five-month program, all of the participants pursued a variety of environmental goals and actions of their own choosing (see Table 1). The themes that inductively emerged from the data--particularly the first family interviews and participant journals--indicate that these goals and actions fell into areas such as: reducing, reusing and recycling; active and/or sustainable modes of transportation; water conservation; energy conservation; healthy and/or sustainable food practices; and gardening (including composting). Other areas included advocating for sustainable practices at work or school and involvement in the community. These were similar to the areas that families had focused on prior to the study (see Appendix K). In terms of the specific actions taken, a few of the family action highlights that occurred during the program are as follows:

- The Lake family did some insulation work on their doors and windows. They also got an energy monitor to keep track of the amount of energy they used in their home. Through this, they learned more about their energy consumption, which ultimately led them to keep more appliances off and use less hot water.

- The Frosts, a family of six, eliminated their use of plastic bags, shortened their showers to 7 minutes, started a backyard compost, reduced their laundry loads, and, although still a challenge at the end of the study, tried to keep their lights off when not in use.

- The Browns started walking significantly more, which not only led to health benefits but to a decrease in driving. For example, Anna and Lily, age 10 and 11, began walking 3-4 km both ways to school (even in -30˚ C weather). The Brown family also built a bee hotel and conducted a waste audit.

- The Roses noticed during their photovoice project how much organic waste they were throwing away. This led them to begin (a) vermicomposting to divert food waste and (b) meal planning to avoid food spoilage. They also attempted to reduce meat consumption.

- Josh Woods (30), who was fairly involved in environmental action before entering the program, built a composting toilet and a greywater sand filter so that he could reuse his laundry water (unfortunately, the water filter was not effective).

For a more complete picture of what the households were engaged in during the study, as well as the goals they set, see Table 1.

The goals that the participants set and the types of actions they pursued tended to be linked to what they had done in the past. First of all, some of the their goals were connected to actions they had been working on when the study began or had tried previously (see Appendix K). Secondly, the participants who had pursued action quite significantly in the past tended to build on this and look for more creative ways to participate in action during the study. For example, in terms of the first case, a number of the participants' goals revolved around improving something that they were already trying to do before the study began: walk *more*, consume *less*, or buy *more* local food. Furthermore, although Norah Rose (28) had tried vermicomposting in the past and Josh Woods (30) had built a composting toilet a year prior to the study, neither Norah nor Josh had had success in their attempts; therefore, they used the study to try again. These examples suggest that participants may have felt most comfortable pursing actions that they were already familiar with or working towards. In addition, the participants who seemed to have pursued environmental action quite significantly before the research started (Josh Woods, the Browns, and Jason Lake), tended to build off their previous experiences and use the program to look for more creative ways to participate in change. For example, rather than simply staying within the types of actions that are commonly discussed in mainstream discourses (e.g., recycling, turning off taps, using more active transportation), Josh Woods (30) built a greywater sand filter, the Browns constructed a bee hotel, and Jason Lake (33) tried to make cleaning products from local plants. This suggests that change happens on a continuum, in which people take on more creative actions once they have surpassed the most common ones. Ultimately, the

examples given are meant to demonstrate how the actions and goals that the participants set and pursued during the study correlated with their previous experiences and participation in action.

Interestingly, some of the actions pursued by participants were not linked to their goals. Rather, some participants took action in areas in which they had not initially set goals. For example, Norah (28) and Scott Rose (28) only thought to start growing their own sprouts once they received tips on how to do this from a couple of the other participants during one of the focus groups. This indicates that hearing about new ideas during the program led some participants to try actions that they initially had not considered. Furthermore, Winn Brown (36) started eating less meat, Mia Lake (14) began volunteering for the environmental club at her high school, and Josh Woods (30) started a compost in his high school's cafeteria and applied for grants to pursue environmental projects with his class; however, Winn, Mia, and Josh did not communicate these goals during the study. These findings demonstrate that, throughout the research, participants went beyond what they had stated in their goals and were engaged in actions "outside" of the research.

Table 1: Goals set and actions attempted by participants during the study

Household	Goals set during the study	Actions attempted during the study
Frost -Laura -Mark -Johanna -Gale -Nicholas -John	**Reduce, reuse, recycle:** 1. Stop using plastic bags 2. Buy less in general	**Reduce, reuse, recycle:** 1. Started using reusable shopping bags instead of plastic bags 2. Found creative ways to reuse old items to redecorate house (instead of buying new) 3. Reduced amount of printing (Mark)
	Transportation: 1. Get a more energy efficient vehicle 2. Use cleaner fuel in vehicle 3. Cycle more	
	Water conservation: 1. Teach children to conserve water 2. Reduce dish water 3. Reduce amount of laundry 4. Take shorter showers 5. Replace taps and toilets	**Water conservation:** 1. Told children about the importance of reducing water (Laura) 2. Reduced amount of water used to wash dishes 3. Reduced amount of laundry 4. Reduced time in shower to 7 minutes
	Energy: 1. Turn off lights when not in use (mainly children) 2. Put in new windows 3. Get solar power 4. Learn to use the pool more efficiently	**Energy:** 1. Turned more lights off when not in use 2. Put sweaters on instead of turning on the fireplace

Household	Goals set during the study	Actions attempted during the study
Frost -Laura -Mark -Johanna -Gale -Nicholas -John	**Food:** 1. Eat less 2. Buy more local food **Gardening & composting:** 1. Start a compost **Community involvement:** 1. Tell friends, family, and community members about sustainable household practices **Other:** 1. Become more aware of environmental impacts and sustainable practices (Mark) 2. Use more green cleaning and personal hygiene products	**Food:** 1. Reduced food intake (Mark) **Gardening & composting:** 1. Started an outdoor compost **Community involvement:** 1. Organized a Community Association program to inform community members about sustainable household practices (Laura) (some had to be cancelled due to lower registration numbers) **Other:** 1. Researched environmental business (Mark)
Lake -Jason -Jackie -Mia -Miles	**Reduce, reuse, recycle:** 1. Eliminate plastic from purchases 2. Simplify and have less stuff 3. Buy more used items instead of new **Transportation:** 1. Walk more 2. Drive less 3. Cycle more **Water conservation:** 1. Take shallower baths (Jackie) **Energy:** 1. Learn about household energy in order to decrease energy use in a targeted way 2. Increase home insulation 3. Go through the EnerGuide program 4. Use human power to generate power (e.g., a pedal generator or hand blender) **Food:** 1. Start preserving food (Jason) 2. Make more food from scratch (Jason) 3. Make meal planning and canning a family activity 4. Shop more at the farmer's market **Gardening & composting:** 1. Fine tune composting technique (Jason)	**Reduce, reuse, recycle:** 1. Reduced plastics and produced less garbage (did not fully achieve this goal) 2. Purged and donated 3. Bought less stuff and followed the '1-in-1-out' rule 4. Reused markers that had been thrown away at school (Miles) **Transportation:** 1. Started walking to work (Jackie) (stopped walking to work when it became colder) **Energy:** 1. Used an energy monitor to learn about how to decrease household energy use 2. Added Lucite panels to leaky windows 3. Replaced floor sweeps at front door 4. Started turning powerbars off at night 5. Used less hot water 6. Tried to use sunlight instead of lights (Miles) **Food:** 1. Made own jam for the first time (Jason) **Gardening & composting:** 1. Started a second compost pile (Jason) **Community involvement:** 1. Volunteered for the school environmental club (Mia) **Advocate for sustainable practices at work/school:** 1. Asked teachers to take the class outside more often (Miles)

Household	Goals set during the study	Actions attempted during the study
Lake -Jason -Jackie -Mia -Miles	**Other:** 1. Learn how to make green cleaning and personal hygiene products 2. Have greener holidays 3. Support local businesses more	**Other:** 1. Picked silver buffalo berry to make into a cleaning agent (Jason)
Brown -Winn -Max -Lily -Anna	**Reduce, reuse, recycle:** 1. Conduct a household waste audit in order to decrease waste in a targeted way 2. Become less paper dependent **Transportation:** 1. Walk more (Lily & Anna) 2. Cycle more (Lily & Anna) **Water conservation:** 1. Reduce amount of laundry (Anna) **Community involvement:** 1. Start an environmental program at new school (Lily) **Advocate for sustainable practices at work/school:** 1. Advocate for more sustainable practices in the school division (goal added later in the project) (Winn) **Other:** 1. Learn about urban bee keeping (Winn) 2. Make a bee hotel 3. Have greener holidays 4. Compare the environmental impacts of common forms of recreation (e.g., owning a video game system vs. going to a movie vs. going on a holiday) (Max) 5. Find a solution to amount of cat litter	**Reduce, reuse, recycle:** 1. Conducted a one-month household waste audit to identify what they were throwing away 2. Started curbside recycling (a result of the waste audit) 3. Purged and donated (Winn & Anna) **Transportation:** 1. Started walking to school (Anna) 2. Started walking and biking to school more (Lily) 3. Started winter biking (Max) 4. Drove less (due to an increase in walking and biking) **Water conservation:** 1. Reduced amount of laundry (Anna) **Energy:** 1. Put up a second outdoor clothes line 2. Hang-dried clothes downstairs during the winter **Food:** 1. Started eating less meat (Winn) 2. Got a pressure cooker in order to preserve more types of foods **Advocate for sustainable practices at work/school:** 1. Put together a list of curriculum connections to link environmental activities to the existing curriculum (Winn) 2. Talked to people at work about getting school land approved for community gardens (Winn) 3. Talked to school principal about getting a community garden (Lily) **Other:** 1. Read books on urban bee keeping and started looking into connecting with the Master Gardener program and a local bee keeper (Winn) 2. Built a bee hotel for the backyard 3. Greened Christmas (e.g., reused wrapping paper and Christmas decorations; gave many gifts that were used, homemade, or consumable; tried persuading family that they did not need to exchange gifts)
Rose -Norah -Scott		**Reduce, reuse, recycle:** 1. Reduced spending and therefore reduced stuff 2. Looked for used items instead of new 3. Purged and donated (Norah)

Household	Goals set during the study	Actions attempted during the study
Rose -Norah -Scott		**Transportation:** 1. Made arrangements to carpool to work more (Norah) 2. Downsized to one vehicle
	Water conservation: 1. Reduce water use	**Water conservation:** 1. Reduced number of laundry loads 2. Took shorter showers 3. Turned off the taps
	Energy: 1. Change to low energy light bulbs 2. Decrease energy use	
	Food: 1. Don't let food spoil and focus on smarter meal planning 2. Reduce eating meat to twice a week 3. Purchase more organic food	**Food:** 1. Reduced food spoilage by reducing amount of food in fridge, shopping smarter, and planning meals 2. Reduced amount of meat in diet and increased use of whole grains, legumes, and diverse vegetables 3. Started making own sprouts 4. Started discussing making bread from scratch
	Gardening & composting: 1. Start a vermicompost	**Gardening & composting:** 1. Started a vermicompost
	Advocate for sustainable practices at work/school: 1. Bring environmental responsibility into classroom (Norah) 2. Be more environmentally responsible at work (Scott)	**Advocate for sustainable practices at work/school:** 1. Discussed the possibility of starting a community garden at school (Norah) 2. Started vermicomposting with students (Norah) 3. Talked to students about minimizing waste (Norah)
	Other: 1. Use more green cleaning and personal hygiene products	**Other:** 1. Started looking at an online database that rates environmental and health standards of cleaning and personal hygiene products 2. Replaced some cleaning and personal hygiene products with greener options
Woods -Josh	**Reduce, reuse, recycle:** 1. Stop buying items that include any kind of garbage	
	Water conservation: 1. Build a greywater sand filter to reuse laundry water 2. Install a composting toilet 3. Reduce water use	**Water conservation:** 1. Made a greywater sand filter for laundry water (the finished filter did not work properly) 2. Assembled a composting toilet in basement
	Energy: 1. Increase energy efficiency for home heating 2. Decrease electricity use	
	Gardening & composting: 1. Grow more of own food, including more indoors during the winter 2. Experiment with and learn more about permaculture	**Gardening & composting:** 1. Grew vegetables indoors (he had tried it the year before too) 2. Bought a book on permaculture
		Advocate for sustainable practices at work/school: 1. Started a compost in the school cafeteria 2. Applied for environmental grants for his class
	Other: 1. Get a roommate to increase population density	

Success and "failure"

For the most part, participants expressed feeling pleased with their family's progress and achievements at the end of the study. During the last interview, they described what they felt to be their families' biggest accomplishments. For example, the Lakes felt that their energy monitor successfully engaged them in energy reduction, the Frosts felt that their biggest family successes included becoming more aware of their water use and setting up a compost, Norah (28) and Scott Rose (28) considered their vermicompost to be their biggest achievement, and Josh Woods (30) felt his composting toilet was his biggest success and that his indoor garden was his second biggest success. While the Browns were proud of their increase in walking and pleased that their garbage audit made them more conscious of their waste habits, Anna (10) and Lily (11) Brown ultimately felt that starting curbside recycling was their family's biggest success. However, their parents were torn as to whether it was the right decision:

> Winn: I've heard lots of stuff about how urban centers don't move to curbside recycling if there's an alternative that people like me buy. So, [the municipal governments] don't go all the way there.
>
> Max: It keeps the people who care quiet.
>
> Winn: And other people don't have to change.

This comment suggests that not all family members agreed on what their biggest successes were, nor saw the benefits of certain actions in the same ways. However, in general, the participants were able to identify a number of their families' biggest successes and were pleased with the progress they had made during the five-month study.

Not only did the participants recognize the progress that their families made during the study, but they celebrated their personal successes as well. These individual successes were acknowledged by both the participants who pursued them, as well as by other family members. For example, Anna Brown (10) and her family were impressed that she went from walking to school once a month to almost every day, while Winn Brown (36) (the curriculum developer) felt pleased with the fact that she had started to bring her sustainability-related ideas forward more at work. Furthermore, Mark Frost (45) was proud of his wife for developing environmental

programming for their Community Association. He considered this to be one of the most impressive outcomes of the study:

> Mark: It was pretty inspiring to see you [Laura], especially at the end with the outcome of the program that you're developing. …
>
> Laura: I would have never thought of it until like that first meeting group. … I had a mission after that day, I said, "I'm going to do this! And I will do this!" … I looked for opportunities and it was great, I was very well supported by my Community Association and they're very happy with it. They're like, "This is a great, fantastic idea!"

Furthermore, Jason Lake (33), who had asked his family to join the research program because he had felt like he was doing most of the environmental work in the household, expressed what he considered to be his personal success:

> Jason: I think my biggest success honestly, personally, was not doing everything for the other three members of my family. …
>
> Jackie: I really enjoyed you not policing.
>
> Jason: And so that's my biggest success.
>
> Jackie: It has helped our marriage for sure.

Although not directly related to a specific action, this comment shows how some participants considered successes to go beyond just the actions they achieved and into how they interacted with others in their life. All in all, participants generally acknowledged that they were pleased with their personal successes, as well as with their other family members' accomplishments.

Despite many inspiring accomplishments, most of the participants also acknowledged their areas of less success. More specifically, they discussed how some of their actions had not gone as well as planned or were not maintained, while some of their goals were not pursued at all. For example, Josh Woods' (30) water filter did not work, despite him putting hours upon hours of time into it. Furthermore, Jason Lake (33) found that his family's goal to eliminate plastic had not gone well, as it was too difficult to achieve:

> I failed at the plastic goal. Absolutely. I kept thinking about it. I'll probably think about it everyday still. Every time I touch something plastic I'm thinking about the plastic goal. But it seems too daunting. There are too many things that I would have to give up to not participate in that.

This comment highlights not only the personal struggles that Jason felt as he tried to change the products he used and materials he relied on, but also the fact that some of the participants' actions may not have gone as planned because society can make it difficult for people to make environmentally responsible choices. In addition to this, some of the participants started certain actions but did not maintain or fully achieve them. For example, Jackie Lake (33) started walking to work, but did not keep it up:

> Jackie: I tried, I really tried, like, "I'm going to walk to work, I don't care if it's 40 below!" But I really care. I hate it every step of the way. And I know at the end I should say, "Well, I'm really proud that I did it," but I'm not, I'm just miserable and pissed off that I had to walk in the cold for an hour! [*Laughter*].
>
> Shannon: … Are you still walking though on days where it's not -40?
>
> Jackie: No. I'm not.

Similarly, Max Brown's (37) personal task of comparing the environmental impacts of different types of entertainment (more specifically, "the cost/benefit analysis and embodied energy of console gaming") was not completed. He felt this was because he was not accountable to anyone. His wife agreed, saying the only times he made progress on his goal was when the two of them worked on it together, suggesting that social support and accountability influenced his actions. Lastly, a few of the participants noted that they had not even attempted some of the goals they had set: Norah (28) and Scott Rose (28) did not change their light bulbs even though they had meant to; Josh Woods (30) did not get a roommate; and Mia Lake (14) stated that her, "biking goal kind of crashed and burned." These examples highlight that some of the actions that participants had tried to or planned to pursue did not go as successfully as they had initially hoped.

In general, the participants felt that there would always be room for improvement in their own practices. For example, a few of the participants acknowledged "failure" as a normal part of change and looked at it as an opportunity to improve upon their practices. As Jason Lake (33) said to his wife, "It's fine to say that you failed. You just need to reassess and decide what you actually can and want to do [and then go from there]." Participants also seemed to recognize that change happens in steps. For example, Winn Brown (36) reflected on her own experiences with environmental action, noting that, after she had begun with one "level," she continued to look for further ways to participate in change:

> I look at my own habits now compared to over time (and I think that will always happen) and the things that I was really proud of in university, now I wouldn't count them as sufficient. You know, so I think that I'd definitely say to someone doing something that is environmentally friendly that, "Yes, it is," but I wouldn't say it was enough for me now.

Similarly, Laura said, "once we got started, we wanted to do more and keep doing more and more and more. … Those small steps really hopefully will get us to those giant steps." In addition to this, although Laura (36) and Mark Frost (45) stated at the end of the study that they were not quite ready for, "big, huge change," they did express that, as long as they continued to stay aware of what else they could do, they would keep pursuing environmental action one step at a time. Therefore, not only did participants tend to recognize that there would always be room for improvement in their practices, but the findings also suggest that getting one's foot in the door (as small as these changes may seem at the start) can be the first step of an ongoing process that brings people to deeper and deeper levels of engagement in environmental responsibility.

Challenges encountered by participants as they attempted to act

In the first section of Chapter 4, *Sustainability*, the participants identified a number of overarching barriers to sustainability. In addition to these, the participants also discussed the challenges they *personally* faced as they attempted to act and achieve their environmentally responsible goals during the study. These challenges are discussed in detail in the following paragraphs.

The barrier that the participants faced the most as they attempted to act throughout the research was a **lack of time and society's expectations to lead a high-speed life**. First of all, most of the participants talked about how it took time to act in environmentally responsible ways. For example, cooking a healthy meal, growing food, and using cycling or walking as primary modes of transportation, were all identified as taking more time than the alternatives (e.g., buying fast food or cooking instant meals, grocery shopping, driving). Josh Woods (30) reflected on this in his journal, stating that, "choosing to bike sometimes means getting fewer things done in your day. This is a lifestyle change that can be refreshing at times but also frustrating after growing accustomed to the productivity enabled by the personal automobile." A few participants also discussed how their work schedules were highly linked to the amount of time they had to pursue other things. Max Brown (37) mentioned how, after he had started working a few more hours a week, he did not have as much time to put effort into environmental actions. Josh Woods (30) and Jason Lake (33) both expressed similar sentiments on different occasions:

> Josh: In the busy periods of life I understand better why other people have difficulty changing. A lot of what I have been able to experiment with is possible because I have chosen to work part time.

> Jason: I notice that the less I work, the more environmental friendly I am, so it's hardly fair to expect people to quit their jobs or take half hours. … Time, I think more than money, more than resources, it seems that people need time to make these changes.

Winn Brown (36) also struggled environmentally due to the high-paced expectations of her workplace. Her job required her to visit numerous places in a day but she was only given short amounts of time to get from one place to another. This forced Winn to use a vehicle, despite her preference to walk. Ultimately, a lack of time and the expectations to live a high-speed life led participants to feel that their attempts at living sustainably were being compromised.

Building on this, a challenge that some of the participants faced was that, simply put, **sometimes life just gets in the way**. For example, participants gave examples of times when they became busy, felt stressed, got tired, turned ill, or had to focus on other priorities. Josh

Woods (30) explained it well when he said, "change takes an incredible amount of extra time and energy. To accomplish change you need to go above and beyond all of the other demands of life. Most people seem challenged enough as it is just keeping up with the everyday tasks required in life." Furthermore, Jackie Lake (33) talked about how she had had visions of, "becoming the queen of environmental perfection at the end of all this," until she realized, "life *does* get in the way." To give another example, Mia Lake (14) had some major life changes take place during the program, which had an effect on her abilities to take part in the study. Not only did she start high school, but she also moved in permanently with Jason and her mother, Jackie, after having lived part time with her biological father. Mia's family said they let her off the hook a bit during the program because of the big changes that were occurring in her life. Ultimately, some of the participants felt that environmental action was occasionally overshadowed when they had other matters or priorities to deal with in their lives.

Many of the participants also discussed how it was often times more challenging to take the environmentally responsible route than the unenvironmental one due to factors such as **inconvenience and poor access to environmental options**. For example, convenience seemed to play heavily on decision-making. As Norah Rose (28) stated, "If I had a choice I would try to live in the most low impact way I could. The problem is that it is far too convenient to do otherwise." Other participants spoke of occasionally throwing things out instead of recycling them, driving instead of walking, throwing clean clothes in the laundry instead of hanging them back up, or buying things that they could have made instead. Scott Rose (28) also wrote about an experience that he and his wife, Norah (28), had had when trying to decide between convenience and what they knew to be a more environmentally responsible choice:

> We had an old [toaster oven] … and originally I was going to try to fix it myself, or at least find someone who could. We wanted to avoid throwing it out, and to try to learn some self-reliance. However[,] … we were out on an errand this week, and spotted a model that included a convection oven, for less than $20, taxes included.

Scott Rose (28) went on to say that they chose to purchase the new oven because it was, by far, the easiest choice. He did ask, however, what that said about our society's values if it is easier to dispose of something and buy a new one than own something long-term and have it fixed.

Similar to inconvenience was the theme of poor and/or limited access to environmentally responsible options. For example, participants identified challenges, such as, poor access to local food, vegetarian options, clear information, cycling infrastructure, and less harmful products (including products made without plastic). Overall, participants felt that inconvenience and limited access made it difficult to make environmental choices.

Another barrier to action that a few of the participants faced was mere **forgetfulness**. As a few of the participants noted, when something is not a habit, it can easily be forgotten about. For example, Laura Frost (36) forgot her reusable shopping bags when she first tried making the switch away from plastic bags, the Browns found that their children would forget to put toilet paper rolls in the recycling, and the Frosts noticed that their children would forget to turn the lights off when they left a room or conserve water when dish washing. As many of these actions started to become habits, they became less forgotten about.

A few of the participants also found it **difficult to determine what actions would best reduce their negative environmental impacts**. For example, a few participants questioned whether the actions they were taking really had positive environmental outcomes. Max Brown (37) voiced his uncertainty regarding what the actual benefits of recycling were: "Sometimes it feels like the garbage is just going to another destination--the yuppie dump." At other times the question became, if all choices have an environmental impact, which actions are the least harmful? Josh Woods (30) questioned whether it was worth concentrating on the "small things" if the "big things" were being left unaddressed:

> There are many small conveniences that I feel like I benefit from that do use energy or resources but these are still far outweighed by the huge energy demand of heating my home in the winter. Are these tiny changes worth the trouble? Is it worth denying myself chocolate to save the planet while my water heater chugs away precious fossil fuel?

Similarly, Winn Brown (36) said, "[some] things are hard because the right choice isn't clear, like a new washer. You need to consider the waste created by the old one plus the impact of making and shipping the new one and then compare that to the energy savings." The trouble in this case was that determining all the impacts associated with a decision was difficult (if not

impossible). Therefore, because the best environmental choices are not always clear, a few of the participants struggled with where they should concentrate their efforts.

Some of the participants also admitted that engaging in environmental action was occasionally **discouraging and unpleasant**, which deterred them from acting. For example, some of the participants were less motivated to take action when they felt discouraged. More specifically, Laura Frost (36) bought a book on composting during the study in order to learn how to compost; however, she was so discouraged by how complicated the book was that she questioned whether she and her family should really pursue it. Furthermore, Josh Woods (30) expressed that trailblazing could, at times, be discouraging. This was due to the fact that there was often no precedence for (or very little information published on) what he was pursuing, which led to mistakes, setbacks, and challenges. More specifically, he felt discouraged when his greywater sand filter did not end up working, which dampened his motivation to troubleshoot or try again. As for the unpleasantness of taking action, neither Jackie Lake (33) nor Lily Brown (11) liked walking in the winter. As a result, Jackie stopped walking to work, while Lily may have stopped walking to school if her family had not pressured her to do so. Some participants also felt that bringing up their environmental perspectives in front of others sometimes took the fun out of things, made others uncomfortable, or hurt people's feelings. This prevented some of them from bringing up certain environmental topics around friends, extended family, and colleagues. These examples suggest that, when struck by discouragement or unpleasantness, some of the participants seemed to be less motivated to engage in those actions.

For those familiar with Saskatchewan's climate, it should not be surprising that participants found it difficult to act in environmentally responsible ways during the **winter**. For example, winter was generally seen as a difficult time, both mentally and physically, which meant that participants found it challenging to continue certain actions or get excited about them. As Max said, winter is draining, "you can see it on everyone's faces." Furthermore, Jackie Lake (33) stopped walking to work because of the cold weather, while Max Brown (37) talked about how it was occasionally more appealing to drive in the winter than walk. Winter is also a very energy and resource intensive season. Thus, some participants referred to the challenges of high heating costs, more laundry, and a loss of outdoor growing (thus more reliance on foods from nonlocal sources). Winter safety also came up. Some parents mentioned how they were not prepared to cycle, nor comfortable letting their children cycle, during the winter. Lastly,

Christmas (and pretty much the whole month of December) was a very difficult time for the participants to put environmental responsibility at the forefront of their lives. Participants were busy, there were a lot of excuses to be gluttonous, and they were constantly exposed to consumerist messages. As Norah Rose (28) said, "Christmas holidays are not so good for the environment. We wined and dined and threw away and bought more." Despite the difficulties associated with winter, it was also acknowledged that, because winter makes up such a large portion of Saskatchewanians' lives, the study was more accurate because it extended into the winter months:

> Lily: Winter is the major part of the year so you have to adjust to that weather. You can't just say[,] … "Oh, I'm going to walk in the summer," because summer is only like 2 months! …
>
> Max: In that sense, I think you actually get a better [research result] … it's [just] not as exciting and positive!

Ultimately, participants expressed that their goals, actions, supports, and challenges were (and would continue to be) affected by the time of year.

Many participants, primarily adults, mentioned that the **high costs and lack of financial incentives** to pursue environmental actions were barriers. In fact, Norah Rose (28) and Laura Frost (36) felt that money was one of the largest barriers to undertaking action:

> Norah: Cost plays a big role in choosing the less environmentally friendly route. It is very expensive to be low energy! If it weren't I think people would be more likely to participate.
>
> Laura: If there were more [financial incentives], we would probably do a lot more. … I think there's not enough incentive for people who really want to do more things.

However, although financial barriers were mentioned on numerous occasions, participants primarily linked these barriers to high-cost actions, such as: replacing taps; installing solar panels; upgrading to a more energy efficient vehicle; and pursuing energy efficient household

retrofits. For example, the Browns pursued a number of actions that they felt did not cost them money (e.g., walking, gardening);[14] however, they were beginning to feel as though they were at a point where they had done all the "easy things" and, as a result, were left with the actions that cost quite a bit of money (e.g., downsizing to a smaller, more energy efficient house). The previous example suggests that, although some participants felt limited by money, they found there to be low- or no-cost actions as well. Some participants even acknowledged that a lot of environmental actions actually saved them money. For example, Laura Frost (36) mentioned how her family's water bill had gone down since they began to conserve water in their home, Jason Lake (33) felt that increasing the insulation in his family's home would lower his heating bill, and Norah Rose (28) said that she and her husband had started saving money on groceries once they started eating less meat. Therefore, although financial barriers prevented certain actions, participants also found low or no cost opportunities to act more sustainably, as well as actions that actually saved them money.

How participants' perceptions influenced what they felt to be challenging

To better understand the challenges and barriers identified by participants, we must acknowledge that the participants' perceptions played a part in determining what they felt to be challenging. First of all, a few participants identified barriers that were, arguably, primarily perceived. For example, Norah (28) and Scott Rose (28) felt that the cost of pursuing environmental action was one of the biggest barriers that they faced; however, they did not use all the resource money provided to them during the study, nor did all the actions they pursued cost money (e.g., donating clothing, meal planning, eating less meat). This suggests that, while they perceived money to be a barrier, it may not have been as limiting of a factor as they suggested it to be. To give another example, Laura Frost (36) suggested how great it would be to have people in the city who would provide support to those who wished to compost; however, she was unaware of the fact that there are Master Composters in Saskatoon who do just that. Therefore, the barrier she perceived (a lack of services) stemmed from not knowing what services existed. The process of acting also challenged some participants to reconsider what they had initially perceived to be difficult. For example, once Anna Brown (10) started walking more

[14] This could explain why they did not use any of the $500 they were provided with to pursue environmental action and learning (see Chapter 3: Monetary Incentives).

regularly, she began to feel that it was more convenient, allowed her more flexibility in her schedule, and was often faster than taking the bus. Similarly, starting and maintaining a vermicompost led Norah (28) and Scott Rose (28) to realize just how easy it really was. Furthermore, Laura Frost (36) pointed out that, once you form a habit, your perceptions change regarding the ease at which the action can be done:

> Composting was a little bit difficult in the beginning because we used to just gather it and put it in the garbage. … In the beginning we did a lot of reminding. So that's how we kind of monitored everybody. Even ourselves, we caught ourselves sometimes just throwing it in the garbage. It was just a matter of developing that habit and once you've done it, it's easy. Doesn't take a long time, really.

These examples reflect what Jackie Lake (33) stated: "[the] miracle of things changing and things getting better is all about your perspective." Therefore, although perceived barriers can result in very real challenges and should not necessarily be seen as simple to address, it may be possible to overcome some of these challenges through a shift in perspective.

Supportive factors encountered by participants as they attempted to act

Just as the overarching barriers to sustainability were explored in the first section of Chapter 4, *Sustainability*, so too were the solutions and opportunities. To add to these findings, participants also discussed the areas that supported and encouraged them to act and achieve their environmentally responsible goals during the study. These areas will be explored in the paragraphs below.

The participants identified three main supports while they attempted to act: **the research**, their **family members**, and the **other participants**. For example, many of the participants stated that they felt supported and motivated to act by simply being involved in a research study that focused on environmental learning, thinking, and action. Further, the findings suggest that the participants' family members and the other participants in the study certainly played the most significant supporting role throughout the program. As Mark Frost (45) stated at the end of the study:

> It is interesting that part of the premise of the study was to look at the effect of familial or social support and interaction as a means to form positive environmental habits. This was really successful. The fact that there was interest and challenge from outside certainly increased my engagement to levels that would not have happened otherwise.

These three supports will be examined in further detail in the following two sections: Chapter 4: Linking participant action to environmental education and research and Chapter 4: Social learning and collective interaction.

In addition to the factors stated above, many of the participants also said they felt encouraged to act in environmentally responsible ways because of the resulting **physical, mental, and nutritional health benefits**. For example, using active forms of transportation, such as walking and cycling, were noted as having many health advantages. Lily Brown (11) felt that walking to school made it easier for her to learn first thing in the morning, while Anna Brown (10) noticed that she became much better at running and linked her improved speed and endurance to her increase in walking. Furthermore, Gale Frost (11) mentioned how he liked the fresh air in the morning when he cycled, while Winn Brown (36) acknowledged how walking was important to her because it provided her with "decompression time." These examples suggest that being active can result in both physical and mental wellbeing. Furthermore, the majority of both the adult and youth participants felt that the nutritional benefits of cooking healthy meals and eating out of one's own garden were significant reasons to engage in these types of actions. Therefore, as one can see, the health benefits of staying active and eating healthily motivated participants to take part in actions that could be considered environmentally responsible.

The findings suggest that many of the participants were motivated to take environmental action because they felt **satisfaction** when they did pursue action and **guilt** when they did not. For example, in terms of satisfaction, Johanna Frost (13) felt that composting was rewarding because she saw how it resulted in a decrease in her family's garbage. Jason Lake (33) also explained how satisfying it was to make his first batch of jam:

> It's a truly unique emotion to admire something you've made that you know you and your family will enjoy for months to come. I have to admit that two feelings fight inside me:

> the urge to have everyone experience the empowerment and simplicity of growing, canning, [and] storing your own food, and the feeling of environmental superiority that I can claim as a result of taking the extra time and effort.

On the other hand, feelings of guilt also prompted participants to act. Winn Brown (36) mentioned how environmentalism was the biggest source of guilt in her life, which meant that she always felt there was more she could do. Josh Woods (30) expressed similar feelings when asked why he chose to become involved in environmental action: "I feel real guilty, like, using more than my share of the world's resources." Norah Rose (28) even saw her own guilt as a positive thing: "It's a good guilt. I think, um, it's easy to just close your eyes or be ignorant of your impact on the environment. And I mean we rely on the environment so we're really not doing ourselves any favours." Therefore, as one can see, the participants' emotional responses such as satisfaction and guilt encouraged many of the participants to act.

Additional findings suggest that, not only did all of the participants hold **the belief that taking environmentally responsible action was essential to sustainability**, but that this belief also prompted them to act. For example, some participants pursued action because they understood how their actions had the potential to negatively impact others, now and in the future. As Lily Brown (11) expressed, "how we act *now* is going to make a big difference. The more we change now, the better future there is going to be for our kids' kids." Lily went on to say how even small changes are important because they add up and lead to bigger change, while Johanna Frost (13) echoed this same belief: "Sometimes people throw something on the ground. Like a piece of litter, they'd say, 'It's only one thing.' But when millions of people say that, then there are millions of pieces of trash." Johanna's comment highlights how our personal actions, when looked at collectively, have a huge environmental footprint. Many of the adults also believed that small change could lead to bigger change and that challenges could be overcome if everyone did their part. As Mark Frost (45) said, "even very small things you can implement in your daily life, when done en masse, can have quite an impact." As one can see, the majority of the participants held the understanding that people's actions are capable of impacting the world, negatively and positively; this understanding influenced them to take actions that they felt to be in line with sustainability.

Lastly, **resources** that helped participants learn about or engage in/with environmental actions and ideas were also identified as supports.[15] More specifically, participants referred to resources such as helpful books (informational and novels), people, websites, films, and other media sources. For example, Winn Brown (36) talked about how important it was for her and her family to be able to interact with online communities and access information on the Internet, while Norah (28) and Scott (28) Rose stated that they were exposed to many environmental ideas and issues through the radio. The online video, *The Story of Stuff* (www.storyofstuff.com), also came up a number of times by various participants (both youth and adult) who were highly influenced by its message. Furthermore, Josh Woods (30) and Mark Frost (45) mentioned how the novels they had begun to read during the study had an impact on them. As Josh said:

> What I needed … was to hear the story of someone who had done something more radical than anything I have done. … So *Walden* turns out to be an excellent source of inspiration. I will definitely read it cover to cover and I can see now why this book is so well known. Just a few pages were enough to help me realign a few priorities again.

Overall, participants identified a variety of resources that they felt helped engage them in environmental learning and action.

Linking action and learning

Some of the participants found that their attempts to act in more environmentally responsible ways--whether successful or not--played an important role in their learning. For example, Max Brown (37) felt that when he tried new things it helped him learn about what is or might be possible, while, under other circumstances, what actions are not realistic to pursue. Furthermore, as Jason Lake (33) said, even if the results or process of taking action do not go as well as planned, at least the act of trying provides you with an experience you can learn from (e.g., by showing you what you could do differently the next time). For example, Josh Woods' (30) experiment to create a greywater system for his laundry water did not end up working; however, it was successful in that, not only did Josh have a learning experience that he could

[15] This finding was somewhat expected considering participants were encouraged to locate resources that would help engage them in environmental learning and action.

draw from in the future if he were to try again, but the other participants also became completely engaged in Josh's progress. As Max Brown (37) said, "it was inspiring even in failure." Max (37) and Winn Brown (36) also felt that when people attempt to change their actions, they learn about and become more aware of their impacts. For example, after Norah (28) and Scott Rose (28) began planning their meals more regularly, they became aware of how much food they wasted and also learned that this waste was directly linked to their grocery and eating patterns. Furthermore, once the Frosts started to compost, they learned that half of their garbage had actually been organic waste. Thus, taking action was acknowledged as an excellent learning tool, in that it gave participants experiences to grow from and led them to discover things about their lifestyles that they would not otherwise have known.

A similar finding that emerged in the research was that acting in ways that model environmental responsibility can impact others' learning and actions. In other words, "people can learn vicariously by observing others" (McGregor, 2009, p. 351). For example, Winn Brown (36) noted how her actions at work might have affected her coworkers' actions: "I show up at my staff development meetings with my own plate and cutlery. … When I started I was the only one doing it, and now lots of people will come by, I think there are five or six at any given time now, with their own stuff." Similarly, Laura Frost (36) expressed that simply being aware of other people who were successfully composting encouraged her to try and keep with it: "A lot of people are doing it, so every time it gets kind of frustrating I'm like, 'Oh, a lot of people are doing it. I can do it, I can do it!' [*Laughter*]." Furthermore, as Anna Brown (10) explained, leading by example, "sort of starts something. Like even just one person." She went on to say that, even if people do not immediately follow suit, people might at least talk about what they saw or learned with the others in their lives. In addition to this, a few of the youth mentioned how they influenced their friends' actions. For example, Anna Brown (10) said that her friend became interested in walking to school and eating vegetarian meals because she had observed Anna doing it, while Mia Lake (14) talked about how a friend of hers began growing some of her own food because she had seen (and often eaten from) the Lake's garden. Therefore, acting in environmentally responsible ways in one's own life has the potential to contribute to shifts in other people's learning and practices; this is an important finding because it shows how one's actions should not be seen as isolated efforts but as the foundation for others' actions and

learning (see Chapter 2: Fostering Sustainability through Social Learning and Collective Interaction, as well as Chapter 4: Social Learning and Collective Interaction).

Linking participant action to environmental education and research

The results of this study suggest that environmental education programs and research can lead people to prioritize environmental action in their lives. For example, the research had an impact on many of the participants' actions. As the Frosts said:

Shannon: Do you think that the actions that you're doing and the actions that you might do in the future, do you think they're linked to this research? Or do you think you would have done it anyway?

Gale: No, probably not. We wouldn't have thought of most of the things we're doing if we weren't in the research right now.

Mark: Yeah, I mean if we weren't in the research, we may have done it but probably at a lot slower of a pace.

Laura: A lot slower pace.

Norah (28) and Scott Rose (28) expressed these same sentiments. They added that part of their motivation to act was due to the fact that the research kept them task oriented, on a timeline, and accountable to others:

Norah: It was like, okay, by this time, you need to have some goals, and by this time you need to have started.

Scott: [Then] Shannon's coming.

Norah: Yeah, Shannon's coming so we better get on it! [*Laughter*]. And I think that kind of kept us on track. … Even with the worms, that's something that I had tried years ago but it didn't work. … I always thought, oh, you know, I tried … and it didn't work, probably not going to do it again. But when you came along, it gave us an excuse to try it.

Scott: Yeah.

Norah: And a few other things too! … Yeah, I think it had a lot to do with the research.

Likewise, the Browns felt that being in the research helped keep them dedicated to action in ways they may not have been if they were not involved in the study. As Max Brown (37) explained:

> There haven't been huge changes because we were already doing a lot of stuff. But I'd say that [the program] really improved our focus and helped us keep momentum going better so that I think that we are really, we're more focused on making progress and on moving towards new goals and continuing to make changes. Whereas before it was maybe, we were floating a little bit.

Even Jackie (33) and Jason Lake (33) felt the program helped provide focus and give a, "push in the right direction." Overall, most participants felt that the program motivated them and gave them the opportunity to achieve some of their environmental goals.

Another interesting example of how the research influenced some of the participants' involvement in environmental action is by examining the Lake family. Environmental action was pursued and supported more equally by the Lakes once they began to participate in the study. To elaborate, at the beginning of the study, Jason Lake (33) said that he felt as though he was the one doing most of the environmental actions in the household and was not receiving much help or commitment from the rest of his family. His family members agreed, stating that he took the lead in this area (e.g., they acknowledged that Jason came up with their family's list of goals almost exclusively on his own). That said, they also expressed hope that their involvement in the research would lead them to greater degrees of participation. As Jason's wife, Jackie Lake (33), said, "I think this project is going to be very good for our family. So far, Jason has been by far the most environmentally responsible person in the house." Although many of the Lake's actions were still led primarily by Jason throughout the study, the family's participation in environmental action did increase. Jason also said that Jackie stopped fighting him on a lot of environmental actions that he wanted to pursue and, because the project acted as a form of pressure, Jason felt like he could stop "policing" as much as he had in the past: "I guess my role was initiator and leader. I started off as reminder. And then I thought that's not, that would be a study of, can the parent in charge drag the family along? Well, the answer would be yes, but

that's four times as much work for one guy to do." Furthermore, Winn Brown (36), who was related to the Lakes through marriage, said that environmentalism had always been a fairly Jason-centered activity in the Lake household, but that it was, "interesting watching … the support spread in their family." Overall, although Jackie, Miles, and Mia may not have gotten on board as much as Jason during the five months in the study, their voluntary commitment to the cause allowed them to move forward on some actions individually and as a family. Overall, this example shows how the Lake's participation in environmental action became more equally distributed due to their participation in the study.

Although many participants linked their actions to their involvement in the research, a few of the participants did not feel they had changed much throughout the study. For example, Jason Lake (33) felt that the study provided more of a snapshot of his family's progress in environmental action rather than acting as a catalyst, while Mia Lake (14) said, "I didn't really do much different. It was more like, make sure you're not turning on a bunch of electricity and don't waste water and stuff like that." Lily (11) and Anna Brown (10) also felt that, although their family had made some improvements, it was not a significant change. Furthermore, because participants had already been engaging in environmental activities (to varying degrees) before the study started, a cause and effect relationship that places involvement in the study as the *primary* cause of action is difficult to conclude. As Jackie Lake (33) said, "I think we were on the path that we were on … [so,] as far as how far we would be along, I'm not sure it's any different." Therefore, although the research played a supportive and motivating role in many of the participants' journeys to more sustainable living, the degree to which the research affected a few of the participants' actions should not be exaggerated, as they would likely have engaged in certain environmental actions even if they had not participated in the study.

Participant action: Will it be maintained?

An important part of the research study was to examine whether or not the actions taken by participants would be maintained. Overall, participants said they were committed to maintaining the actions that they started. For example, some actions became a part of participants' lives and, thus, were seen as easily maintainable: The act of vermicomposting became a habit for Norah (28) and Scott Rose (28); Anna Brown (10) integrated walking into her daily routine; and the Frosts switched permanently from using plastic bags to reusable bags.

Most participants also said they wanted to continue working on the areas they felt needed further attention. For example, Anna Brown (10) wanted to keep decreasing the amount of laundry she produced; Jackie (33) and Miles Lake (12) wanted to further reduce the amount of stuff they had; Josh Woods (30) thought he might try to work on his water filter again in the spring; the Lakes wanted to incorporate more biking into their lives; and Lily Brown (11) wanted to walk more. Mia Lake (14) also planned on becoming more active in her high school's environmental club, while Laura Frost (36) wanted to continue offering environmental programming through her Community Association. In addition to these examples, in a follow-up email one year after the study ended, Winn Brown (36) confirmed that her family's actions had not only been maintained, but built upon as well:

> Our home life continues to make slow, steady progress. In general, our family managed to hold the changes we made last winter, including continuing to walk and bike, now drying laundry on the line even in the winter, and extensive recycling (more than just blue box, lots including everything we can find from chemicals to light bulbs to batteries).
>
> The significant changes the project caused for us were all around our role in the community. Lily, Max, and Anna are doing little things when they have the opportunity. Max is taking a stronger advocacy role--for example, volunteering for [a local cycling event]. Lily spent last week on a "redistribution" plan for school supplies in classrooms in her school. Anna has started a major project to get other students at school walking and biking and she has completed most of the research for it and started making speeches at public venues about it. Her plan is to launch it in April. I have no idea what will actually happen with it, but it is exciting. If you'd like to mentor her with it or help her connect to others in the environmental community, I know she'd be delighted.
>
> Things are going well for me, too. I have managed to get an environmental portfolio established at work (and establish someone to work on it), put together a division-wide committee to look at education for sustainable development, and help push the use of green building techniques in our new environmental centre.
>
> I just wanted you to know that the research did make a lasting difference for us.

As this email suggests, the research had a lasting impact on the Brown family's involvement in sustainability. Therefore, it is quite possible that the other participants have maintained--and expanded on--the actions that they started during the research.

Not only did the participants express that they wanted to maintain and continue building on what they had started during the research, but they also communicated their interest in pursuing future goals and actions once the study ended. More specifically, all of the participants gave examples of actions they wished to pursue in either the short-term or long-term future. For example, the Frosts mentioned that they wanted to get a more energy efficient vehicle, as well as solar power, while the Lake, Brown, Rose, and Woods households all expressed interest in having more energy efficient and/or smaller homes in the future. Additionally, the Frost family wanted to purchase more local foods (when affordable), Norah Rose (28) talked of starting a garden at her in-laws' farm, and Jason Lake (33) wanted to incorporate human power into the way his family lived (e.g., by using a hand-crank blender and charging batteries with a shaker). Jackie Lake (33) and Mark Frost (45) also talked of their work-related goals. Mark thought about the possibly of starting a business related to "eco-coaching," while Jackie wanted to advocate for better environmental practices in the health care system because of its large environmental footprint. Although it is hard to say whether participants will pursue and achieve these goals, it was hoped that by having participants think about future possibilities, that they would stay engaged in environmental thinking and action once the program was over.

It should be noted that, even though the overwhelming response was that participants wished to maintain their actions, Norah Rose (28) felt that certain actions had the potential to be discontinued after study ended. As she stated:

> I think some of the routines, especially the things you can't forget about like the worms and recycling, we'll just keep doing them. They're a part of our daily lives. But some of the other things, like our gradual shift to vegetarianism, that one, I don't know how sustainable that one is now because we've kind of gone the other way. It's a little bit harder to do when you're surrounded by carnivores.

This statement highlights the fact that it is difficult to say whether all of the participants will maintain everything they started, despite the fact that at the end of the study they all expressed

interest in doing so. Furthermore, without the factors that helped support and engage participants in action during the program (see Chapter 4: Supportive factors encountered by participants as they attempted to act), the level of effort as was seen during the study might not be maintained into the future.

Critical Thinking

An objective of this research was to engage participants in actions, ideas, and interactions that would foster critical thinking on the part of participants. The findings suggest that being a part of the research prompted critical thinking and reflection, which, in turn, increased some of the participants' motivation to act. However, the difficulty of directly linking participants' critical thinking to their involvement in the program is also acknowledged in the discussion below. This section concludes by exploring some of the participants' views that, although critical thinking and reflection may help people to think and act in more sustainable ways, as isolated efforts they may not be enough to prompt people to change their actions.

Participant critical thinking, reflection, and awareness

The findings suggest that the research prompted critical thinking and awareness on the part of participants, which led them to reflect upon their own (and others') actions and lifestyles. For example, a few of the participants felt that an important part of the research program was that it encouraged them to reflect on their own lives. Winn Brown (36), Max Brown (37), and Mark Frost (45) commented on this at separate times during the research:

> Winn: I think some things that are really strong about the project for me is having to reflect about it.

> Max: I think that, even if you didn't have any intention on making a change, [it is important] discussing why that was. … I just think it's good to get it out there and think about it.

> Mark: I think just participating, your awareness and your consciousness about [sustainability], it's increased so much!

To expand on these statements, some of the participants felt that their involvement in the program led them to reflect upon and become more conscious of their actions. For example, Winn Brown (36) was led to question whether her and her family's choices should actually be considered to be sustainable, given that they were still framed within a highly consumptive, North American framework: "I think the environmental things [my family and I have] done so far are different versions of the same ways of thinking. Like we're living the same way but this one's made of bamboo. I think that's essentially what we've done." Furthermore, as Scott Rose (28) said, "I became more aware, more frequently, of the impact of every choice I make." He expanded on this in his journal by saying:

> We've started using reusable grocery and produce bags; we've had an account with Saskatoon Curbside Recycling for years; we try to buy products with the least amount of packaging, or with recyclable/reusable packaging; we're conscious of turning off lights as we leave a room, and not leaving faucets running. Simple things, I suppose. But when I consider how many choices I make in a day, two thoughts occur to me. First, that examples such as those given above reflect only a small portion of the choices I make. What about the clothing I wear? The imported fruits and vegetables I routinely purchase? What about my job (or jobs, as the case may be) and its impact? Obviously, the actions I take responsibility for are greatly outnumbered by the relatively unconscious choices I make. And second, … What about the things I'm not even aware of? What choices do I make completely unaware of the actual consequences?

This comment suggests that critically thinking about important and, perhaps, uncomfortable topics (such as one's own lifestyle and choices) may be an important step not only in self-analysis, but also in leading to deep questions. Reflecting on one's own lifestyle also helped Josh Woods (30) come to realize what he was able and unable to accomplish. As he said, "I think the research helped me find the balance. … And now that I have a better understanding of the balance and the pace at which I can change things here, I'm better equipped to continue this stuff into the future." Another topic that was commonly reflected upon was the difficulty of changing one's lifestyle. Mark Frost (45) discussed this in his journal, while Jason Lake (33) deliberated over what the difference was between people who readily adopted change and those who did not.

Lastly, some participants critically thought about *others'* actions and the broader lifestyle issues we face as a society. For example, Jackie Lake (33) reflected on this in her journal:

> When we got in the car to go to the [first focus group] I noticed some things I wouldn't have a few years back. All the plastic Halloween decorations on people's homes. They are so bright and colorful. Pretty, and they will last forever in a landfill. I picture them all dirty, faded, and still there long after we are dead. … [We look] at sexism, racism, [and] all kinds of ways we've perpetuated wrong on one another, and we are shocked and horrified. We say, "how could people have thought that was OK?" then go to the dollar store and buy all this crazy stuff that simulates nature just so we can throw it away in a few weeks?!!

This passage from Jackie's journal demonstrates her ability to link social and environmental issues, as well as critically examine broad societal issues such as materialism. To conclude, the findings suggest that the participants were led to critically think about and reflect upon their own and others' actions and lifestyles throughout the study.

To build on the discussion above, a few of the participants discussed how thinking about and reflecting upon their actions both increased their awareness, as well as prompted them to act. For example, not only did 13-year-old Johanna Frost feel that being involved in the research program increased her environmental awareness, but she also linked this awareness to a change in her actions:

> I think I sort of changed from more awareness. Like if I'm doing something bad for the environment, before this I wouldn't even notice. Like I'd throw something on the ground and it doesn't even matter. I wouldn't think about it. But now, if I did throw something on the ground, I'd be like, "Oops, I did that, so now I have to go pick it up and throw it in the garbage."

Furthermore, during the Brown's one-month waste audit, they realized that most of their garbage consisted of plastics that could not be recycled at the drop-off depots that they were currently taking their recycling to. Following this realization, they signed up for curbside recycling

because it took a broader range of recyclables. Therefore, once the Browns became more aware of what they were throwing away, they changed their actions in order to divert more of their waste to the recycling stream. Similar to the Brown's waste audit, as the Lakes became more aware of their energy use by using an energy monitor, this led to more energy-conscious decision-making. As Mia Lake (14) explained:

> We're monitoring how much energy we use in the house and we're noticing how much we actually use. Especially Jason has been forcing us to turn lights off when we're done in a room or if we're not using the TV or anything around there, turning the powerbar off. Or the computer, the same thing.

Other participants stated that thinking about and becoming more aware of their actions during the research led them to make more small changes, more often (e.g., like turning out the lights, keeping appliances off, and recycling instead of throwing things in the garbage). This suggests that as some of the participants became more aware of their actions, it also led to a change in their actions.

As the participants talked about their ideas, beliefs, experiences, and knowledge with the other participants, this led many of them to reflect and build upon their own thinking. For example, as a couple of the participants tried to flesh out their understandings of sustainability, they expanded their thinking in this area. The following conversation highlights how Jason Lake (33) was led to refine his definition of sustainability once he began to discuss it aloud:

> Jason: Too long on the computer, too much of this [or that] kind of behaviour, it's really, too much of anything right?
>
> Jackie: Yeah. Yeah.
>
> Jason: Because you can have too much variety too. I've failed far more often from having too much on my plate than having too little.
>
> Jackie: Yeah. For sure.
>
> Jason: Hey, there's an inroad to sustainable living right there. Too little or too much, there's got to be a balance there. So maybe sustainability in your own behaviour is more important than sustainability in a world environment. If more people

behave sustainably in their own lives--

Jackie: Yes!

Jason: Then maybe the world itself would achieve a better stasis.

Jackie: That's a brilliant thought, honey!

Jason: I'm having an epiphany! [*Laughter*].

At this point, Jason began to understand that one person is only able to do so much and that people may influence change more successfully if they are leading well-balanced lives. Had he not had this conversation, he may not have challenged his thinking in this area or come to this understanding. Further to this, as the participants talked with one another, this prompted them to reflect on new and/or different ideas, beliefs, experiences, and knowledge. For example, while the participants answered questions regarding the ways in which social circumstances can impact one's abilities to participate in sustainability (see Appendix G), this led many (if not all) of the participants to expand their thinking in these areas (e.g., how people have different (and sometimes fewer) opportunities to participate in change depending on their culture, gender, location, or socioeconomic status). To give a specific example, during the second focus group, Winn Brown (36) and Jackie Lake (33) listened to Laura Frost (36) talk about her upbringing in the Philippines and how it had influenced her environmental ethics. Winn reflected on what Laura had said and responded by suggesting that affluent societies have much to learn from people who have grown up with fewer resources:

> I think it was interesting what you were saying about the Philippines … I think if we thought, "if everybody had the same lifestyle as I did, how would the world be?" I think that would be a real eye opener for us. I think lots of times because we live in an affluent society and because we perceive our society as superior, it's easy for us to feel like we have the right to do whatever we want environmentally. There's a sense of entitlement.

In addition to this, Jackie was still reflecting on this same conversation during the last family interview: "When we had that conversation, [Laura] was just full of opinions and ideas. And I thought she was really fascinating. It would be nice to have more conversations with her." Therefore, this demonstrates how the conversation that Winn and Jackie had had with Laura

influenced their thinking quite significantly. As one can see, the participants were affected by the conversations they had with others, as these discussions led them to (re)think and reflect upon their own understandings.

The difficultly of directly linking the participants' critical thinking, reflection, and awareness to their involvement in the program should be noted. For example, many of the participants would likely have critically thought about their actions (and the impacts associated with these actions) without involvement in the study. As Jackie stated:

> I want to be clear, just in case I misrepresented that, when I say that I think about the environmental impact of everything all the time, it's not because of this study, it's because of, it sort of happened gradually over a short period of time after Jason came home and was crying over this video he had seen [*The Story of Stuff*] and was really impacted by it, that got me started thinking about it.

Not only that, but due to the fact that participants were critically thinking about environmental topics and actions before the study began may suggest that participants entered the research *because* they had already begun to think deeply about how their lifestyles had an impact on the environment. Ultimately, although critical thinking, reflection, and awareness did occur throughout the five-month study, the degree to which they were influenced by the research is difficult to determine.

Critical thinking, reflection, and awareness: Are they enough?

Many of the participants suggested that critical thinking, reflection, and awareness were necessary in order for people to shift to more sustainable ways of thinking and acting. For example, the importance of reflecting upon and thinking deeply about one's actions and values was discussed quite frequently. As Josh Woods (30) summarized:

> There was a wish on that list that we brainstormed about [*refer to Figure 2*], the hope that people would critically think about their actions, or think about their values first and then act based on their values. And that's how I think about environmental responsibility, that you're always reassessing your values and then your actions in relation to those values.

Furthermore, some participants stated that when people are not aware of an issue or solution, they do not act. As Jackie Lake (33) pointed out, the current lack of awareness may be the greatest current barrier to environmentally responsible living; a big enough issue on its own that it needs to be dealt with first before things get worse. The current lack of awareness and critical thinking was also considered to be linked to, as Mark Frost (45) said, "a perceptual and philosophical issue of how people want to live and think they should be living." For example, Mark felt that shifting away from unsustainable values and viewpoints requires that people form and articulate a new vision, or new "normal," that would both challenge the current systems people live within, as well as offer new ways of living. Lastly, some participants felt that critical thinking and awareness could help people adopt a greater sense of responsibility, which in turn, could lead people to act more responsibly. As Winn Brown (36) said, "If you actually feel responsible for the environment then you get much closer to actions that are environmentally responsible. It's that we don't feel responsible … and then we have no moral obligation to act. And that's true for social issues as well." Essentially, many participants felt that critical thinking, reflection, and awareness regarding one's actions and beliefs (as well as in relation to greater environmental and social circumstances) would better position people to examine whether their lifestyles were aligned with sustainability, which, in turn, could lead people to act and/or change.

As the findings above suggest, many of the participants acknowledged that critical thinking was important to sustainability, as well as linked some of their own actions to their awareness and thinking; however, that being said, some of the participants also questioned whether critical thinking, reflection, and awareness, *as isolated efforts*, were enough to prompt people to act. For example, the reason that this study was successful in engaging participants in action was likely because it went beyond just a focus on critical thinking, reflection, and awareness to also include social support and interaction, as well as commitment to and engagement in environmentally responsible action. This suggests that the changes that participants made were influenced by multiple factors. Furthermore, although critical thinking, reflection, and awareness were considered by many of the participants to be an essential part of sustainable living, some of the participants also acknowledged that these factors, on their own, might not always or immediately lead to action. For example, Scott Rose (28) explained that awareness did not necessarily lead people to, "step up to a higher ideal," while Jackie Lake (33)

did not feel that reflecting on her actions always resulted in a change in action: "If I'm opening a pack of cookies, I think about all of the wrapping around the cookie and how the cookie is made [but] it doesn't necessarily change everything I do." Furthermore, without better access to practical and applied solutions, Mark Frost (45) felt that people may not progress beyond critical thinking and awareness: "Many people like myself see environmentalism as an extremely important issue and support it philosophically. Yet we are ignorant what to do about it other than the most apparent and simplistic changes: change our light bulbs, recycle, bicycle, etc." Similarly, Josh Woods (30) explained that if awareness of an issue is not linked to how people can participate in solutions, attempts to engage people in environmentally responsible action could prove futile:

> [Teachers will] do this whole project on global warming and climate change … and then they'll just, after work they'll get in their car and drive home. … So, what the students are really learning is that, you know, all we need to do is just talk about this. But really, we don't need to change anything, because that's, because my lifestyle is the most important.

In this case, students were made aware of the fact that there was a problem, but not asked to consider how to address it. This led to a separation between awareness of environmental issues and applied environmental solutions. To conclude, although critical thinking, reflection, and awareness can lead us to question our actions, make sense of broader environmental and social circumstances, as well as come to better understandings of ourselves, others, and the world, the findings suggest that they may be most effective in prompting change if paired with other factors, such as engagement in action, as well as social participation and support.

Social Learning and Collective Interaction

This section explores the ways in which participants were influenced by others. For example, the discussion begins by examining the impacts that family members had on each other throughout the research, including how they influenced one another's participation in action. Following this, findings are explored that demonstrate how participating with other families during the research was an influential and valuable part of the study. To conclude, there is a brief

discussion regarding how the participants' relationships with others outside of the research played a significant role in their learning.

The impacts of participating with family

All of the participants expressed that the study would have been more difficult had their other family members not supported them during the five-month research program. This is primarily due to the fact that the family support they received both increased their abilities to act, as well as made the actions they pursued more enjoyable. For example, Max Brown (37) made more progress on his personal goal when he worked on it with his wife because he had help and encouragement, while he felt that his family's goals were more successful than his own because there was an element of teamwork: "[we] were able to get much more excited as a group about it and that support is just really, really critical." This suggests that support from other family members can increase one's abilities to act. Furthermore, participating with other family members increased some of the participants' satisfaction as they pursued their action goals. For example, Jackie Lake (33) expressed that she enjoyed the feeling of teamwork with her husband, while Anna (10) and Lily Brown (11) stated that they enjoyed having their parents accompany them on their walks to school because it was less lonely. Therefore, in these cases, being with other family members acted as a form of support because it increased participants' enjoyment beyond what it would have been individually. To expand on this, the single participant, Josh Woods (30), thought the program would have been more fun if he was still living with family because it would have been, "more of a team event than an individual thing," plus he would have had people to celebrate successes with. In general, family members enjoyed working together and were very supportive of one another, which enabled them to participate more successfully in the research program.

The participants influenced and supported the other members of their families in both intergenerational and peer-to-peer ways. For the families that had children--the Lakes, Browns, and Frosts--there was a great deal of intergenerational influence. For example, the parents influenced their children's values and affected what they saw as "normal," noticed and responded to what their children talked about and brought home from school, and felt their children had a positive impact on their environmental choices. The children were also highly influenced by their parents. For example, Anna Brown (10) stated that her parents were the most

supportive influence in her life, while her sister, Lily Brown (11) said, "I know for me and Anna, if … we didn't get support from our parents, then we wouldn't be environmentally responsible." Furthermore, Mia Lake (14) stated how Jason (33) and her mom, Jackie (33), encouraged her to bike and walk to school (a form of support that Jason felt he had not received from his own parents), while Gale Frost (11) said his parents helped him be more sustainable. Siblings and partners also influenced one another. For example, siblings reminded each other of and helped one another with a variety of activities (e.g., Gale Frost (11) helped his brothers remember to turn off the lights and take shorter showers), while partners tended to discuss and share sustainability-related ideas with one another. As Max Brown (37) wrote in his journal: "Had a good talk with Winn about environmentalism at lunch. She was questioning my desire to buy some new controllers for the Playstation. We talked ourselves right into a log cabin with no electricity or running water." Laura Frost (36) also journaled about the support she received from her husband:

> Every morning, when the kids are in the shower, I get frustrated when I hear them taking a long time in the shower. It is hard to leave what I am doing (getting the breakfast and lunch ready). My husband saw my frustration and started helping me by knocking on the bathroom door to remind the kids to finish with their shower. It was a great help and ease off my stress.

This comment suggests that some (if not all) of the parents in the study helped one another when it came to encouraging their children to act in environmentally responsible ways. In general, these examples demonstrate how family support and influence during the study occurred in both intergenerational and peer-to-peer ways.

Some of the participants, particularly the parents, expressed that they were inspired by and proud of their other family members during the research. More specifically, some of the participants spoke of how much they admired particular members of their family for engaging in action. For example, Mark Frost (45) stated that he was inspired by how motivated his wife was during the program and proud of her for developing environmental programming for their Community Association. Furthermore, Jackie Lake (33) admired her husband's actions and tried to follow suit: "I often admired Jason. And pointed out that I was pleased with things that he was

doing and tried to emulate him." Max Brown (37) also expressed that he was "driven to do better" when he saw the improvements his daughters were making. Laura Frost (36) expressed similar sentiments:

> It's inspiring for me too that the kids are actually, you know, whatever we kind of encourage them to do, they help. They're not just kind of, don't care, they actually help. … John would say, "To composting?" or he would ask me, "Recycling?" … I think for his age [*7 years old*], understanding that really inspired me to keep going.

The importance of having family acknowledge one's accomplishments was also voiced by Josh Woods (30), who felt that living on his own made it difficult to stay motivated at times: "Change can take more individual will power living on my own since, for example, no one is at home to acknowledge the hard work of a long winter bike ride or the extra time spent preparing a tasty supper from local ingredients." Overall, these findings indicate that the participating families appreciated and admired one another during the study as they attempted to engage in more sustainable actions.

Although family support and appreciation proved to be very influential and important during the research, one of the most significant ways that family members influenced each other throughout the study was through pressure. Many of the participants tended to indicate to other family members what it was they wanted them to do through monitoring, communication, and leading by example. For example, the primary form of pressure that seemed to exist throughout the program was family monitoring. The Browns expressed the importance of monitoring other family members' actions:

Shannon:	Do you think you monitor each other's actions?
Winn:	Yeah. And I think, pushed sometimes when one or more of us didn't feel like doing whatever it was.
Max:	I would say we wouldn't have gone as remotely as far with any of our stuff.

Even Josh Woods (30) admitted that being accountable to or monitored by someone else might have helped him at times because there was no one there to challenge him when he lowered his standards. To give a specific example of family monitoring, Laura (36) and Mark Frost (45) monitored the amount of time their children spent in the shower by placing an egg timer in the bathroom, setting it for seven minutes, and then knocking on the door if their children went over that time. Gale Frost (11) also monitored his two younger brothers by regularly reminding them to take shorter showers. Another way that family members pressured each other was through communication. More specifically, some participants would comment on what they felt the other members of their family should do (both directly and through suggestion). For example, Lily Brown (11) felt pressured by her family to walk more and reflected on this in her journal:

> Mom and dad gave me a u must excersise talk and made me feel supr guilty they were like we are not saying you have to excersise but you should because everybody else is its better for you yada yada yada what kind of choice is that. I felt like they weren't giving me a choice. I like walking but not in snow and it is to dangerous to bike.

Although her family did not tell her she *had* to walk, they admitted that they applied "a substantial amount of guilt." A more direct form of communicative pressure was from Jason Lake (33), who told his wife (before the study) that they needed to make some major lifestyle changes. Jackie Lake (33) reflected on the experience by saying, "[Jason] came home and said that if I was to continue to be married to him I had to anticipate some major change in our lives!" Furthermore, Jason Lake (33) would apply pressure on his family by regularly bringing up their action goals and their participation in the research in conversation: "After a few reminders, it went down to, 'So have you?' or, 'We have [a focus group] coming up. Do what you think is important or necessary.'" Lastly, a few of the participants indicated that they felt pressured to act if they saw one of their other family members leading by example. For example, Winn Brown (36) spoke of how her youngest daughter, Anna (10), tended to lead by example, which made the rest of the family feel as though they should act in line with their environmental values:

> Anna feels really strongly so she's the conscience of the family. So if we make a movement on something and the rest of us are like, "Nah, I don't know if I feel like doing

> that today," when our youngest member is like, "Well, I'll do it," then the rest of us are like, "Well, I guess we will too!" [*Laughter*].

Not only that, but as Anna Brown (10) started walking more, she rubbed off on the rest of her family and they began walking more as well. Overall, it seemed as though multiple forms of pressure--such as monitoring, communication, and leading by example--were used in order to encourage environmental action and keep family members dedicated to their goals.

While the families planned and pursued their goals, they performed a diversity of roles and undertook different responsibilities. The roles and responsibilities that participants took on spanned a variety of areas. The most commonly indicated areas that participants identified with included: researcher, problem-solver, brainstormer, initiator, organizer, and physical labourer. In addition to this, a few of the participants described how they took on roles such as encourager and follower. For example, Max Brown (37) indicated that he felt he was the "enthusiast" of the family because he tried to make "mundane tasks enjoyable" and foster a sense of pride in being different. Similarly, Jason Lake (33) felt he encouraged his family to think about environmental action: "I like to think I give [my family] cause for thought. That at the very least, I bring new information to the table, and encourage them, and lead by example. And hopefully that will rub off in little ways." Another role that was acknowledged as important was that of follower. As Jackie Lake (33) expressed, "I think I'm a good follower. Which I actually think is an important role. … I think that I get on board with stuff and [am] supportive of other choices for us." Similarly, the Frost children felt they were good listeners and did what their parents asked them to do (e.g., take shorter showers, turn off the lights, etc.). Therefore, following was seen by some of the participants as a helpful and needed part of accomplishing group goals. Ultimately, the findings suggest that in order to plan and pursue actions with other family members, each person does not need to take on the same roles or responsibilities; in fact, drawing on the diversity of skills and abilities within a household helped the participating families incorporate individual strengths into group pursuits.

A few of the participants also acknowledged that the structure of their household had an impact on how (and in what ways) they participated in the study. More specifically, some gave examples that related to how living alone or having children influenced their actions. For example, although the primary focus of this research was on families, Josh Woods (30) was

living on his own after having recently lived with his sister and her husband; this allowed him to reflect on the differences between living alone and with family. Despite acknowledging the importance of family and expressing at times that the project might have been more enjoyable had he been living with family, he also noted: "I feel that I am advantaged in living on my own because change is really easy. Once I am convinced that a change is needed I can just make it happen." Furthermore, some participants acknowledged how having children (and the number of children) had an impact on their actions. For example, Laura (36) Frost expressed that having four children meant it was difficult to reduce the amount of stuff they owned and consumed; however, she also made a point of saying that her children had a big impact on her and her husband's decision to become more environmentally responsible. This suggests that there are different opportunities and challenges faced by families with children, families without children, and those living on their own.

As one can see, the participants were significantly influenced by their family members throughout the study. As Jason Lake (33) expressed, "I think family are the biggest influence, even if they totally disagree with you. … It's really good having family." Furthermore, even though Josh Woods (30) was living on his own, his family still played a key role in his life: "As the sounding board for a lot of my ideas, my family helps me practice restraint when I think of something a little too radical and offers important encouragement that I don't always receive from coworkers." Therefore, the findings demonstrate how families are an extremely important group to engage if we are to encourage people to participate in sustainability.

The impacts of participating with other participants

The majority of the participants not only expressed that getting together with the other participants was their favourite part of the study, but also identified "community" as a main theme at the end of the research. In particular, they felt that the research was successful in building a supportive community. As Norah Rose (28) said, "I think this project has been wonderful in creating a community that will, hopefully, grow." To expand on this, some participants felt that the social support they received led to a sense of togetherness and community. As Max Brown (37) said, the sense of community helped him feel that he and his family, "[weren't] isolated or alone … in the 'fight.'" Furthermore, his wife, Winn Brown (36), felt that the program showed her how valuable it was to be in a community:

> Sitting with the focus group reminded me how important it is to be in community, especially on environmental issues. … Sitting with the group and talking reminded me that we are getting there and that being with people who also think the environment is important can make a big difference to how you feel about the whole thing.

The focus groups also helped participants feel that the activities they were engaging in were "less fringe," as being with others who were working on similar types of change normalized environmental thinking and action. This was important because, as Max Brown (37) stated, "living outside of accepted norms is hard. You have nobody telling you when you're doing a good job. At least when you are in the mainstream there are the standard ways of measuring up. I hate them, but sometimes a little external validation is nice." Therefore, creating opportunities for people to interact and communicate with like-minded community members (e.g., in this case, with others interested in living sustainably) can provide people with support not always received from the dominant, status quo community. Mark Frost (45) expressed how being within a supportive community was necessary to turn environmental interest into environmental action:

> The roadmap [to sustainability] is not enough (the information on recycling, composting, and a plethora of other changes that are possible is readily available on the Internet). What is needed is the personal support and coaching to build habits and adherence to their environmental commitment.

Therefore, the social support that the participants received from the others in the study should not only be seen as having led to a sense of togetherness, but also as having encouraged action. Ultimately, the participants found that the sense of community that was gained by being with the other participants was very valuable and supportive.

A couple of the participants described how the sense of community they gained during the research led to feelings of power. For example, during the last family interview, Jackie Lake (33) reflected on the power that can come from being with others:

> I really enjoyed the get-togethers with everybody because of the feeling of, um, personal power in the room. I think that's something that comes along with environmental awareness, with any kind of awareness, what your personal power is within that situation. … So, when you're in a group of people who think they have some amount of power, that's a powerful feeling. You can't help but get caught up in that.

Jackie Lake (33) continued by explaining how social movements are driven by groups of people who come together to form communities and talk about important issues:

> Jackie: I took Women and Gender Studies at the university years ago. And we talked a bit about how feminism, not just started, but how it had a constant push … largely due to small groups of women in their kitchens or playing cards, talking to each other. … That specifically has come back to me each time we've met with the families, or even when we've just sat down to talk about things as a family, is that, it's the same thing. If you get groups of like-minded people together to talk about things that they might be able to work on, the environmental issues in their lives or whatever, it's going to have exactly the same impact. … So I think it's fantastic.
>
> Jason: I would agree. And I would say they don't even need to be like-minded people.
>
> Jackie: That's true.
>
> Jason: They just have to be minded people. Anybody that's willing to think, they can be of totally different walks of life and interests.
>
> Jackie: That's right.
>
> Jason: And the conversations will bear some fruit.

These comments by Jackie (33) and Jason Lake (33) refer to the power that small, meaningful communities can hold, which links directly to what American cultural anthropologist, Margaret Mead, is so well known for expressing: "Never doubt that a small group of thoughtful, concerned citizens can change the world. Indeed it is the only thing that ever has." The results of this research show yet another example of where her words ring true.

In addition to the findings above, many of the participants also found that being a part of the research community was motivating. For example, they expressed how being with others outside of their families acted as a push to achieve some of their environmental goals. As Jason Lake (33) stated, "being a part of this process gives me something that I can talk about when I come to these study groups. It's a bit of a push. It feels good." Furthermore, Norah Rose (28) felt motivated to do more after meeting with the other participants: "The people at the focus group were amazing! … It was inspiring to learn what they have tried and what they are working on. It also made me realize how much more Scott and I could do." Meeting up with the group also inspired some participants, like Josh Woods (30), to keep going with their actions even when they were not necessarily excited to do so: "Their excitement was good. It was nice to be part of a group that is wanting to change and is still kind of in the excited phase. I think sometimes I've passed the excited stage. [*Laughter*]. So it kind of reinvigorated some dreams of my own." Even I, as the facilitator of the study, was a motivating factor for participants. For example, Norah (28) and Scott Rose (28) joked that they had to achieve some things before I came for the first interview, while Laura Frost (36) said that the composting resources I provided her with helped convince her family to start composting. Ultimately, external influence and collective interaction helped motivate participants to become (and stay) engaged. Therefore, creating opportunities for people to form relationships with others who will support, push, and motivate them to do good things can be used as an effective way to prompt change because, "*motivation* [is] fundamental to change" (Miller & Rollnick, 2002, p. 10).

The findings suggest that one of the most beneficial aspects of bringing the participants together was that a significant amount of sharing took place. More specifically, all of the participants shared knowledge and ideas with one another, which allowed some participants to envision further ways they could participate in change. In terms of knowledge sharing, participants shared their personal experiences and expertise with one another, as well as information and resources. For example, the experienced composters shared some useful tips to those who were just beginning to compost. Furthermore, participants shared ideas regarding what they were doing, had done, and were planning to do. The diversity of examples that came forward showcased the vast number of possibilities that could be pursued in the area of sustainable living, which was extremely engaging for many of the participants. Mark Frost (45) even found this to be the most interesting part of the study because he felt that hearing about the

different, and sometimes experimental, things that the other participants were doing gave him all sorts of ideas. As he admitted, "I realized I was mistaken thinking that I had exhausted the smaller incremental steps to change." Likewise, Scott Rose (28) explained, "We also got some great ideas from the people at the focus group, like making slight modifications to plastic containers to grow sprouts; to culture our own yogurt; as well as various websites to help us make more informed decisions." Rather than becoming overwhelmed by the number of ideas that came forward (in the sense of, "Oh no, there's so much more I need to do!") participants seemed empowered by the variety of ways they could participate in change. Winn Brown (36) explained:

> I get ideas for things to try. And because other families are trying it, and I can see that those are families like me, I feel I can try that. … Sometimes when Josh is talking about the things he's trying, I'm like, "Oh, that'd be hard!" [*Laughter*]. … And that's good too because then I have a destination as well. I have other things that I can be thinking. So I'm here, but I could do this and this or this.

To expand on what Winn Brown (36) stated, Mark Frost (45) said that he became more aware of what could be done as he began to see the different avenues of potential change:

> Here I learned, maybe there's more small things we can do, like growing vegetables inside with lights, or the bee home … and it's just becoming aware of those. I think I also, in terms of larger types of goals, I think those became more refined or maybe more clear, the possibilities of how we can achieve those.

Furthermore, the act of sharing also influenced participants' actions. As Winn Brown (36) said, "one thing I heard all of us talk about today is the concept that hearing each other talk about things increases our willingness to try them." For example, Anna Brown (10) and Norah Rose (28) expressed interest in possibly getting an energy monitor after hearing Jason Lake's (33) stories of how it was successfully engaging him and his family in environmental change, while Jackie Lake (33) started walking to work because she was inspired by Lily Brown (11), who had shared her walking experiences with the group. Ultimately, Josh Woods (30) said it well when he

expressed to the other participants near the end of the study, "It was kind of how I hoped it would be, where we all share. So I appreciated you all for that."

Most of the participants felt that the conversations that took place during the focus groups were very valuable and engaged them in meaningful topics and issues. As Winn Brown (36) said, "the program has convinced me that it's really valuable to be talking with other families." Even Jackie Lake (33), who admitted that she did not initially understand what there would be to talk about during the focus groups, was really impressed and interested in the good discussions that took place:

> I really enjoyed meeting all the other families. I loved having an animated discussion with like-minded people. It was so refreshing to explore environmental issues with people who don't get uncomfortable or defensive about it. I also feel so proud of the children for getting into the discussion. I would love to have more of these kinds of get-togethers in my life.

As hinted at above, not only did participants seem to share similar views, but discussions also remained respectful. Furthermore, the discussions that took place about environmental actions, ideas, and issues were important for some participants because they were not frequently exposed to these types of conversations in their day-to-day lives. As Scott Rose (28) mentioned, "I think having a discussion about actions, environmental policies, personal experiences and experiments, also helped to put the topic back to mind. These aren't common talking points amongst our crowd." Similarly, Winn Brown (36) stated that, even though her family spent quite a bit of time with the Lakes prior to and outside of the study,[16] she had never heard Jackie Lake (33) talk about environmental issues until the research focus groups: "This is one of the first times I've actually heard Jackie talking about environmental issues as if she has some investment in them as well. So that's been a very interesting change." Thus, the facilitated conversations in this research study successfully brought people together to discuss meaningful topics and issues.

An important function of the focus groups was to provide participants with the opportunity to share their successes, challenges, and failures with each other. The findings

[16] The Lakes and Browns are related (Max Brown and Jason Lake are brothers). They were not aware of each other's participation until they had already entered the program.

suggest that this led many of the participants to feel good about and celebrate the things they were doing well and lessen their feelings of defeat when they were struggling. As Winn Brown (36) explained:

> I'm just with a bunch of other people who are also struggling to make things a little bit better, so if I don't succeed in "X" way, I don't feel like I suck. [*Laughter*]. I just feel like that's reality, that's life. Or if I do succeed in some other way, and then the group's like "Good job!" then I feel like, "Oh, it was worth the struggle!" So those are both really helpful things for me.

Max Brown (37) also explained how important it was to talk about and reflect on failure because it can help you accept that failure is embedded within the process of change:

> I think everybody experienced some success and some failure. But, as something we noticed, the reflection was valuable whether you succeeded or failed. And that the failures taught you an awful lot. And attempting something hard didn't mean that we're a bad person because we didn't manage to fully follow through on it. And I think that that is a good thing for people to remember to consider when trying to break out of the box, that you're going to fail as much as you're going to go forward.

Accepting failure as simply a part of being human was also commented on by Josh Woods (30). For example, he felt that, by seeing a certain degree of hypocrisy in the other participants' actions and thinking, this helped him become more accepting of the hypocrisy in his own practice. Overall, participants seemed to feel that being with others who were also attempting to modify their lifestyles allowed them to accept and celebrate that change is accompanied by successes, challenges, and failures.

Another very significant finding of the study is that some of the participants began to reach out to the broader community as they started to better understand that a sustainable lifestyle required them to think and act beyond themselves and their families. For example, some participants began to think about and become more interested in the other participants' lives. More specifically, Jason Lake (33) said that being a part of the research group made him become

increasingly interested in what the other families in the study were, "doing and want to do and have done in the past," which suggests that the relationships formed during the study brought people to care about and become interested in others' lives. Not only that, but some participants became more community-minded. As Winn Brown (36) said near the end of the study:

> [Coming into the study,] I didn't really have any environmental goals beyond me. I kind of felt like everybody should move along [on their own]. And the community in this process made me feel like maybe I should be doing things beyond myself. And so that's kind of a lasting thing that I'm going to take out of this that I didn't have coming in.

Josh Woods (30) expressed similar sentiments, stating that he began to think "outside and beyond" himself and more about community. Laura Frost (36) also said, "I think being in the research group, in the study, it was a really kind of, helped me in thinking of doing more for the environment and sharing whatever I know to everybody." In addition, Mark Frost (45) began to understand that environmental action, "might not mean giving up a vehicle, but it could be making a better shift [at work] or in the kids' school or something to that effect. That you can bring environmentalism beyond yourself." Mark's comment is important because it suggests that he started to better understand that environmentally responsible action did not just mean reducing, reusing, and recycling, but that it also fell within the area of community engagement and social change. Building on the topic of community engagement, Laura Frost (36) began offering environmental programming through her Community Association because, after meeting the other families, she realized how much there was to share about sustainable living. She even asked the other participants to be involved in the programming.[17] Similarly, Norah Rose (28) expressed that the other participants motivated her to continue trying to engage her students and coworkers in environmental action, while Winn Brown (36) began to see her workplace as a way to reach out to community groups:

[17] The programming ran in the spring of 2011. I and two other participants agreed to participate in the Community Association programming. I helped organize speakers, while Winn Brown (36) and Josh Woods (30) agreed to present on gardening and cycling, respectively. Unfortunately, neither Winn nor Josh ended up presenting, as both the sessions were canceled due to low registration numbers. I partnered with Laura Frost (36) to organize another set of Community Association presentations in the Fall of 2011.

> So this week, one of the things that I did was [*Pause*]. *Go Eco!*[18] [a local environmental organization] is looking to host another youth summit or something and I met with a couple of the people. [The organizer of the group] and I had talked about it in December. Before when I've talked about these kinds of things I've said, "Are we interested?" Now I'll say, "We are interested," because it talks about issues that matter to us, which I will say at work. Which I never used to do before because I just thought it was issues that mattered to me. And so I, one of the really big differences in this process for me is moving to a point where I'm comfortable advocating at work.

Overall, the fact that some of the participants began to better understand that a sustainable lifestyle required them to act and think beyond themselves is an important realization because it led them to become more community-minded. This is significant because, as Jackie Lake (33) stated, "There are endless ways to come out of our shells and connect. And if we can … make connections, then we can move in the right direction together."

The impacts of people outside of the study

The participants' environmental values, learning, and actions were influenced by others outside of the study, both prior to and during the research. For example, some participants described how the people in their lives--friends, extended family, colleagues, strangers--had an impact on their environmental values. As Norah Rose (28): "I have a lot of friends who are environmentally conscious and my brother … works for conservation, my sister in-law works for [an organic company] so it's always kind of been part of my life, I guess." Some of the participants also suggested that some people in their lives had had a "negative" impact on their environmental values. As Laura Frost (36) stated:

> My kids were not into this brand name thing until my two older kids have grown up. Both of them have been pressured. And no matter what I did to prevent them from going into that brand name stuff, I couldn't. …They were getting depressed, they were getting embarrassed. And we have an old van, so even that, they're ashamed of it. … It's very difficult for them to really accept the way we live and what we have. … It's the outside

[18] *Go Eco!* is a pseudonym.

> pressure. It's actually their friends that tell them, "You've had that jacket for years! Aren't you going to change it?" Before that, they were okay. For a couple years they weren't saying anything and then all of a sudden!

This example highlights not only how difficult it is to resist dominant discourses such as materialism, but also how highly people are influenced by their peers. A few participants also discussed how other people were key to their learning and practices. As Josh Woods (30) stated:

> That's probably the only thing that has affected my view on sustainability, other people … all these beliefs I have, have come from people that I've encountered and each one of them has taught me some kind of lesson and I'll take that lesson and apply it to the experiences I have in life.

Lastly, some participants gave examples of how other people had affected their actions. For example, Jackie Lake (33) discussed how her dedication to downsizing and becoming less attached to her things had been influenced by an experience a teacher of hers had had:

> I had a teacher who lived a block away from here and her house burnt down last year (she's still alive). … I didn't even really know her that well, but that experience that she went through influences me when I'm working on my goal of not being attached to my things and not keeping something because I think I should or because I've owned it since I was four or whatever. … I mean, people's houses burn down and they get over it. They wouldn't say, "Oh, this copy of this book that I think I'm going to read one day, I'd be devastated for the rest of my life if it burnt down with my house." They don't do that. They must get over it because they get on with their lives. So I guess that's a way I've been affected by outside happenings. … I would like to be able to fit everything that I'd be devastated to lose into a [small] fireproof box. [Laughter].

In conclusion, although the participants told many stories--both positive and negative--of how people had influenced their values, learning, and actions, these few examples are meant to

demonstrate that social learning and collective interaction were not only occurring within the study amongst participants, but outside of it as well.

Formal Education and Educators

Education emerged as a common theme throughout the research even though questions regarding participants' views on education were not included as a formal part of the interview, focus group, or journal protocol. That education came up frequently in the research discussions likely has a lot to do with the fact that there was one educator in each participating household (a substitute teacher, a high school teacher, an elementary school teacher, a curriculum developer, and a Community Association program developer; see Figure 1). Not only that, but all the youth participants were in school, as were Scott (28) and Norah Rose (28), so their experiences as students came forward as well. The discussions that occurred during the program suggest that participants felt formal education (whether on a local or global scale) and educators could play an important and supportive role in furthering sustainability. However, this section also highlights participants' experiences with and opinions of environmentally unsupportive educators and the education system at large. These areas are explored in more depth below.

Participants' insights regarding the role of formal education in sustainability

Both the adult and youth participants felt that formal education could play an important part in furthering sustainability. For example, some of the comments made by the participants referred to how education could be used to create and nurture opportunities to pursue environmental action. More specifically, the students, teachers, and parents in the study identified the potential for schools to pursue activities such as schoolyard gardening, composting, and recycling, as well as initiatives focused on going outdoors and reducing or reusing classroom materials. Not only that, but some participants attributed their environmental awareness and value systems to their experiences in school. For example, Laura Frost (36) linked her children's environmental awareness to what they learned in school (both in and out of class), while Norah Rose (28) credited her primary school with having contributed to her environmental value system: "Do you remember, there was that big wave of, you know, reduce, reuse, recycle [in the 90s]? So that was always something that we were taught in school and, I dunno, just always on my mind I guess." Furthermore, as Scott (28) and Norah Rose (28) mentioned, their exposure to

a diversity of information and ideas in university helped them to better understand what is happening in the world and increased their environmental consciousness. Therefore, the examples given demonstrate how formal education can support and encourage sustainable living by not only engaging students in environmental action, but by also connecting students to ideas and ways of thinking that impact their values and understandings of the world.

Providing people globally with access to formal education was also identified by some of the participants as having the potential to raise opportunities for people to engage in environmental learning and action. For example, during the second focus group the male participants talked about the need to provide women, worldwide, with educational opportunities. More specifically, they felt that if more (better yet, *all*) women had access to education, they could pursue careers, be financially stable, and participate in higher levels of decision-making. Josh Woods (30) also talked about the importance of giving men and women equal opportunity: "[if] people of different gender ended up on the same path, they'd have similar ability in environmental decision-making." A few participants also felt that education could play a large role in engaging people in sustainability if information and knowledge was made more accessible, as well as transferred more effectively between people. For example, the Frost family stated how education could encourage, "people who have [environmental] knowledge … [to] help the regions that don't." Laura (36) and Mark Frost (45) also felt that by educating more people and making information more widespread and accessible, this could help people become better informed regarding what they could do to lessen their environmental impacts. Therefore, as one can see, a number of the participants stated how formal education (whether on a local or global scale) could play an important and supportive role in furthering sustainability.

Despite the fact that education was viewed as having the ability to play a leading role in sustainability, the participants did not provide a clear answer regarding what this type of education should look like. For example, although there were some examples given regarding the types of sustainability-related activities schools should pursue (as stated earlier in this section), the changes that participants felt needed to be made within schools were not discussed extensively. Furthermore, although some of the participants felt it would be valuable to make education accessible to everyone around the world, they did not provide a framework for what worldwide education could or should look like. Not only that, but considering that the participants critiqued educators and the education system at large for *not* engaging people in

sustainability (see Chapter 4: Participants' insights regarding the role of educators in sustainability), using the current educational model as a way to foster social and environmental responsibility may not be what they had in mind. Therefore, even though participants acknowledged the *potential* for education to enable people to live more sustainably, the details of this were not thoroughly discussed.

Participants' insights regarding the role of educators in sustainability

A common theme that arose throughout the research was that educators could (and do) play a critical role in impacting students' participation in sustainability. For example, the youth participants gave personal examples of how some of their teachers took active roles in including environmental action in their practices and teaching. More specifically, they spoke of teachers who engaged them in recycling programs, schoolyard gardens, composting, reducing classroom paper use, and outdoor teaching. Student participants talked highly of these teachers, as they considered them to be their environmental allies. Furthermore, the teacher participants explained how they felt it was important for educators to not only support sustainability, but to integrate it into their workplace and teaching practices as well. For example, Norah Rose (28) had her students participate in political letter writing and recycling, while Josh Woods (30) felt that his role as an educator was to broaden the perspective of his students in order to, "equip them with the skills and values necessary for sustainable living and active citizenship." Ultimately, as Jackie Lake (33) explained, educators have an incredible ability to influence students on a day-to-day basis and are able to make changes within multiple children each year; therefore, how and what teachers teach can greatly impact students' involvement in sustainability.

As noticed during this study, an additional benefit of having sustainability-focused educators in our school systems is that students pass on what they learn from their teachers to others in their lives, particularly their parents. For example, the findings suggest that many (if not all) of the youth participants influenced their families by bringing home the environmental knowledge, values, and skills they learned from their teachers. Many of the parents in the study even expressed how they were persuaded to make environmentally-centered decisions because of what their children brought home from school. As Laura (36) and Mark Frost (45) discussed:

Laura: That's how we started with our recycling. We learned from our daughter 'cause they were learning it at school. … She was bringing books every day about the environment, about recycling, about different things. And they're doing it at school, and talking about it, and it was in the newsletter. It was every single day kind of learning about this thing. And so, that's how we started. And I'm sure some parents started at the same time as us because that's how we learn.

Mark: Mhmm. [*Agreeing*].

Winn Brown (36) echoed this by stating, "when the kid comes home and says, 'Mom, why aren't we recycling paper?' as a parent you're like, 'Uh, I want to have a good reason!' [*Laughter*]. And then when you don't, you're like, 'Fine, we can recycle paper.' And then you get started." Furthermore, although Josh Woods (30) did not have children of his own, he felt that one of his roles as a teacher was to get students to talk about environmental issues and actions because, "they bring it home to their parents. … And then they come back to me often saying, 'We started doing this at home, because, I just, I just started it. And my parents thought I was silly but I started it and now they like it.' So many stories like that." This comment demonstrates how students pass on what they learn to their parents and advocate for change in their homes. In fact, one of Josh's motivations to join the research was to understand the opportunities and barriers that families face so that he could better engage his students, and thus their families, in sustainability: "I hope that I will have … a better understanding of how families can change. Like, the hurdles, the barriers for families. And so that might help with some of the ideas that I work on with school [and] with students." Therefore, these findings demonstrate how educators who integrate sustainability-related knowledge, values, and actions into their teaching not only impact their students, but their students' families as well.

Although participants gave examples of educators who were supportive of and actively involved in sustainability, unfortunately many of them also had firsthand experience with a number of teachers who were unsupportive and uninvolved. For example, many participants commented on the tendency for educators to *not* participate in environmental activities or school-wide initiatives, nor encourage or expect environmental behaviours in their classrooms. Although this was generally considered to be a negative thing, Mia Lake (14) explained how she viewed one of her teachers as environmentally supportive, even though her teacher did not

participate heavily in sustainability-related activities: "[My teacher is] not quite proenvironmentalism because she doesn't really think about much of that stuff, but when somebody suggests something that's kind of like that, she'll consider it." Thus, even if educators do not take on a leadership role in sustainability-focused learning and action, they can still help support change if they are open to suggestion and change. However, for the most part, many of the participants--adult and youth--frequently noted how educators have a tendency to be not only wasteful, but also *resistant to changing* those wasteful habits. Furthermore, a few participants mentioned how some teachers even discouraged or downplayed the importance of environmental action. As Laura Frost (36) said, one of her son's teachers told her students, "it does not matter how much water we use because it gets recycled." This lack of environmental awareness and ethic on the part of educators was noted as particularly worrisome because it led students to follow suit. As Norah Rose (28) explained, "The playground at the school I teach at is littered with plastic bags and wrappers. I guess parents and teachers haven't been doing that great of a job educating these kids about the delicate balance of nature." That said, as Josh Woods (30) stated, "changing students is easy because their minds are open. Changing teachers is really, really hard." Despite the challenge of trying to change teachers, if sustainability is to be achieved in our schools (and, thus, our homes), a large emphasis needs to be placed on increasing educators' engagement in sustainability-focused teaching and learning.

It should also be noted that the educators in this research did not feel that teachers were solely to blame for the lack of sustainability-focused learning and action in schools; rather, they identified *the education system* as being a fairly significant barrier to sustainability. For example, the teacher participants described how educators who wished to focus on sustainability in their teaching practices and workplaces were not well supported. More specifically, they stated that there was too much red tape to do anything beyond what was expected, a lack of financial support, and no incentives for teachers to incorporate environmental learning and action into their teaching. One of the teacher participants even discussed how the College of Education did not teach him anything about environmental learning or action, nor encourage him to push the education system to do things differently. He felt this was extremely unfortunate and stressed the importance of, "chang[ing] the teachers before they get into school. Like, excite the ones in the College of Education. And provide support for them as they go into their new school 'cause they're gunna run into a lot of brick walls." Some participants also felt that the lack of support

from the education system, in addition to low teacher participation rates, led to a reliance on a dedicated minority of educators who would start and maintain sustainability focused activities. This put pressure on the teachers who were already putting effort into environmental programming, even if they did not always have the time or resources to run the programming effectively. Gale Frost (11) mentioned what happened when an environmentally supportive teacher left his school:

> There used to be gardens at the front of our school and then they got tooken down because she was the one that used to take care of them. But then nobody would take care of them so all of the plants started dying. So then they had to take all of them down. There used to be three and now they had to take all of them down.

Unfortunately, this example highlights the lack of support that Gale's school gave to sustainability initiatives and the teacher running them. Ultimately, many of the participants felt that, if sustainability-related learning and activities are to be pursued in our schools, our educators need to be better supported and encouraged by the education system.

Conclusion

Throughout Chapter 4, a number of findings were presented that explored the research participants' understandings of sustainability, action and change, critical thinking, social learning and collective interaction with family and community, and insights into the important role that formal education and educators play in sustainability.

Section one, *Sustainability*, explored participants' definitions of sustainability and environmental responsibility, including what they felt to be the biggest barriers and supports to sustainability. Participants defined sustainability in terms of environmental, personal, and community health and wellbeing, as well as acknowledged that the word itself is understood and applied in different ways by different people and organizations. Environmental responsibility was primarily defined as one's personal responsibility to act in ways that do not damage the environment, while the thinking and values needed to foster these actions were also emphasized. Social responsibility and respect were linked to environmental responsibility as well. Participants also discussed what they felt to be the biggest sustainability-related issues that needed attention

as well as the greatest possibilities for solving them. The areas that participants described as barriers to sustainability included: the economy; the government; people's general lack of involvement in sustainability; people's aversion to change; inequity and one's social circumstances; and the communication and cultural gaps that exist between people. On the other hand, participants felt that sustainability could be supported through: improving the current economic system; creativity and communication; great leadership; and changing workplace (including school) practices. The section concluded by exploring whether participants felt a societal transition to more sustainable ways of living is occurring. More specifically, although the participants generally felt that sustainability is not the norm, they did believe that the current sustainability movement provided hope that it might be possible to adopt a "new normal" that leads towards a more sustainable future.

The second section, *Action and Change*, explored the actions that participants took throughout the program. The types of actions that participants pursued not only varied from person to person and family to family, but also extended beyond the goals they set at the start of the study. The findings also indicated that, despite some areas of less success and the acknowledgement that there would always be room for improvement in their environmental practices, the participants generally felt pleased with their outcomes and successes. Participants faced numerous challenges and supports as they attempted to act as well. For example, some participants felt that certain factors made it difficult for them to act such as: a lack of time and society's expectations of a high-speed life; the fact that sometimes life just gets in the way; inconvenience and poor access to environmental options; their own forgetfulness; the difficulty of determining what actions would best reduce their environmental impacts; feelings of discouragement and unpleasantness; the winter season; and the high costs associated with some environmental actions. The participants' perceptions were found to play a part in determining what they felt to be barriers to action. On the other hand, participants felt very supported during the research by family members, other participants, and the research itself. Furthermore, they acknowledged that the health benefits associated with many environmental actions motivated them to act, as did emotions (such as satisfaction and guilt) and the belief that their actions mattered. Helpful resources (e.g., books, online information, films, etc.) were also identified as supports. The findings in this section also highlighted how taking environmental action can not only provide one with valuable learning experiences, but also engage others in environmental

learning and action. Next, the section went on to state that, although involvement in the program encouraged many participants to act, the degree to which the research affected these actions is somewhat difficult to determine. The section concluded by stating how participants expressed interest in both maintaining the actions they started during the program, as well as pursuing further action.

Section three, *Critical Thinking,* focused on how participants critically thought about and reflected on their actions (as well as broader environmental and sustainability-related topics) during the program. This increased their environmental awareness in some cases, as well as their participation in environmental action. Furthermore, it was found that the discussions that participants had with one another led them to reflect and build upon their previously held understandings. Lastly, this section concluded by acknowledging the difficulty of directly linking participants' thoughts and reflections to their involvement in the program and also highlighted some of the participants' views that, although critical thinking, reflection, and awareness are extremely important to sustainability, as isolated efforts they may not be enough to prompt people to change their actions.

In the fourth section, *Social Learning and Collective Interaction*, the findings indicated that participants were highly influenced by their family members and other participants during the research. In terms of family, the results suggested that the support participants received from their family members (both intergenerationally and peer-to-peer) not only increased their abilities to act, but also their enjoyment in undertaking action. Furthermore, participants expressed that they were inspired by and proud of the members of their family for involving themselves in environmental action. Family members also influenced each other during the program through different forms of pressure (monitoring, communication, and leading by example). Not only that, but family members took on different roles and responsibilities as they pursued their action goals and acknowledged that the "structure" of one's household (e.g., single person household, family with children, family without children, etc.) can influence the ways in which one participates in environmental action. The other findings discussed in this section were concerned with the dynamics between participants. The majority of the participants not only expressed that getting together with the other participants was their favourite part of the study, but also identified "community" as a main theme at the end of the research. The sense of community that was gained led to feelings of power, motivation, and meaningful conversation.

Not only that, but the significant amount of sharing and conversation that took place was seen as very valuable, as was the opportunity to share in successes, challenges, and failures with one another. Participating with others also led some of them to understand that a sustainable lifestyle required them to think and act beyond themselves and their families. To conclude, the section highlighted how people outside of the study had an impact on the participants' environmental values, learning, and actions as well.

Lastly, section five, *Formal Education and Educators*, explored participants' insights into the importance of environmental education. The findings suggested that participants felt educators and formal education (both locally and globally) had the potential to play supportive roles in furthering sustainability. Not only that, but environmentally-focused education and educators were seen to be important because of their abilities to increase students' involvement in sustainability, which, in turn, could impact parents' participation in environmental decision-making as well. Lastly, section five focused on some of the participants' experiences with environmentally *un*supportive educators and highlighted some of their opinions that the education system at large is not doing enough to support sustainability.

Further insights in terms of how this study contributes to the research literature, as well as its implications for future environmental education practice and research, will be explored in Chapter 5.

Chapter 5
Discussion

To conclude my thesis, I will discuss how this study contributes to the research literature, as well as explore the implications for future environmental education practice and research.

Contributions to the Research Literature

Sustainability

The participants' understandings of sustainability and environmental responsibility reflected common definitions of sustainability as outlined in the literature review. For example, the literature review focused on key reports such as *The Brundtland Report* and *The Earth Charter*. These reports emphasize sustainability as a state in which: the needs of both present and future generations are met; a high quality of life for humans is maintained; ecological integrity is upheld; just and equitable social systems are created and maintained; and respectful relationships with people and with nature are formed (Earth Charter Commission, 2000; United Nations 1987). Similarly, the recurrent themes that participants linked to sustainability revolved around: not using more than one needs or more than the earth can provide; quality of life; ecological integrity; social and environmental responsibility; living in harmony with others and the world; balance (on personal and global levels); and mindfulness. Furthermore, some participants linked sustainability to a way of living that would not compromise future generations' abilities to meet their needs. As one can see, the participants' understandings of sustainability are very compatible with the foundational definitions from *The Brundtland Report* and *The Earth Charter*.

Participants also discussed the difficulty of defining sustainability due to the various ways it is understood and applied, which also reflects what has been stated in the literature. For example, Davidson (2011) and Manderson (2006) discuss how the ambiguous meaning of sustainability (e.g., there is no universally accepted definition of sustainability, nor one particular way to apply it) makes it difficult to know whether something is actually sustainable. This was reflected during the research as well, in that some participants acknowledged that (a) there is not one common understanding of or "roadmap" to sustainability, (b) the most sustainable choices are not always clear, and (c) sustainability may be approached and applied differently depending on context. As Winn Brown (36) said, "there could be lots of diversity in how we approach

sustainability." Furthermore, the literature and research findings both suggest that there are numerous things at play that make sustainability difficult to understand and achieve. For example, researchers such as Manderson (2006) and Reed and Peters (2004) highlight that the environment, science, and what constitutes a human need are always changing, which makes it difficult to determine what sustainability is and how it should be applied. Similarly, Jason Lake (33) challenged definitions of sustainability that focused on ensuring the needs of future generations are met based on the fact that it is difficult (if not impossible) to know what those needs might be. Lastly, some participants discussed the potential for sustainability to be used or applied "improperly." For example, Norah Rose (28) felt that some corporations used green washing techniques to look good, rather than actually changing their business practices to reflect principles such as environmental and social responsibility. Furthermore, Winn Brown (36) felt sustainability had been watered down to, "different versions of the same ways of thinking … [in that] we're living the same way but this one's made of bamboo." These examples reflect the research of Closs, Speier, and Meacham (2011) and R. Kahn (2009), in which they describe how sustainability is being applied "shallowly" in order to give the impression of sustainability (e.g., green washing). Therefore, by reflecting on both the literature and the research findings, it can be seen that sustainability is understood and applied in various ways, which makes it challenging to know what sustainability really is and means.

Learning

During this research, participants became engaged in environmental learning in a variety of ways, which is in line with the argument that learning is "an aspect of all activity" (Lave & Wenger, 1991, pp. 37-38). More specifically, the learning that took place during this research occurred through social interaction, discussion, critical thinking, and reflection, as well as through the participants' personal and collective exploration of resources, research on ideas and solutions, and participation in action. For example, participants discussed a variety of topics, including what they experienced throughout the research, which led them to learn about new ideas and gain different perspectives. Furthermore, critical thinking and reflection helped participants learn about their daily (in)actions, exploring new information guided participants to learn about areas they had little previous understandings of, and attempting to act in more environmentally responsible ways helped participants learn more about their own abilities and

consider future possibilities. All of these examples confirm research that maintains that learning occurs throughout our day-to-day experiences, relationships, and interactions (Capra, 2007; Hart, P., 2003; Hart, P., 2007; Illeris, 2009; Lave, 2009; Lave & Wenger, 1991; McKenzie, 2008a; Wenger, 2009; Wentzel & Watkins, 2011).

Action and change

The action goals that were set and achieved by the participants during the research were diverse and varied. This reflects what has occurred in other participatory action research projects. For example, the participants in C. Reid et al.'s (2006) Feminist PAR program pursued diverse actions on both individual and collective levels, as did the participants in this research. Similarly, actions taken in both studies went beyond the formal contexts of the programs. For example, participants in this research took action in areas that they had not initially set goals around (see Table 1). Furthermore, in both the case of C. Reid et al.'s (2006) study and this research, action did not start at the beginning of the study; rather, participants had taken action before the research began. For example, some of the participants' goals in this research were connected to actions they had been working on when the study began or had tried previously (compare Appendix K to Table 1). Lastly, both PAR programs left some actions and goals to remain as hopes for the future (e.g., some of the participants did not achieve all they had planned to accomplish, while others wished to think about future opportunities and areas for improvement). Given the similarities between the research done by C. Reid et al. (2006) and this research, this suggests that PAR can encourage a diversity of actions, allow participants to build off what they have done in the past, and help participants envision possibilities for the future.

The outcomes of this study reaffirmed the conclusions of other researchers who have studied the factors that impact whether or not people take up new or different actions. More specifically, researchers have found that people tend to adopt new actions that are advantageous, straightforward and attainable, and measureable, as well as actions that people have had previous experience engaging in. For example, McKenzie-Mohr and Smith (1999) and Rogers (1995) discuss how people are more likely to engage in actions that they perceive as advantageous, which was found to be true in a few cases during this research. For example, Jason Lake (33) put in more insulation to decrease heating and cooling costs, while the Browns began walking more, in part, to improve their health. Another trend is that people prefer to take up actions that are

straightforward (Rogers, 1995) and attainable (Locke & Latham, 2002). Again, participants' actions reflected this. For example, water conservation, carpooling, switching personal care and cleaning products, and reducing one's amount of laundry--all of which occurred during this research--can be seen as fairly straightforward and easily attainable. Furthermore, people tend to look for actions that have visible or measureable results (Rogers, 1995). For example, both recycling and composting visibly decrease the amount of garbage one produces and can be measured (e.g., the Brown's waste audit), which could explain the high uptake of these actions by the participants. Lastly, it has been found that people tend to engage in actions that they have had previous experience with (McKenzie-Mohr & Smith, 1999). This was found to be true in that many of the participants set goals to improve upon actions they had tried prior to the study. For example, the Browns set a goal to walk *more*, while one of the Frosts' goals was to buy *more* local food. Furthermore, Norah Rose (28) had tried vermicomposting in the past and Josh Woods (30) had tried building a composting toilet prior to the study (both with little success) and they set goals to try these actions again during the research. In conclusion, the research findings confirm that people adopt new or different actions based on advantages, straightforwardness, measurability, and past experience.

In contrast, some of the participants' actions *did not* fit the trends stated above. For example, some participants engaged in activities that were quite complex. Josh Woods' (30) water filter was quite complicated, as was Max Brown's (37) examination of the embodied energy of different forms of entertainment. Further, these actions were not guaranteed to be easily attainable; in fact, Josh and Max's goals were not successfully completed. That some participants engaged in actions that were quite complex suggests that people are interested in, as West (2009) stated, pushing themselves above their levels of ability and expertise. Furthermore, other participants' actions did not have immediately visible or measureable results. For example, the benefits of the Brown's bee hotel would be difficult to measure (e.g., whether there was an increase in plant pollination and biodiversity in the surrounding area), while Laura Frost's (36) community association programming would not necessarily have immediate or measureable results because, as Braus (2004) states, the impacts of education are difficult to measure. This suggests that people do not simply pursue actions of which they can measure the immediate impacts. Thus, these examples demonstrate that people do pursue actions that go beyond some of the common trends identified by the researchers in the above paragraph.

Researchers have found that multiple factors encourage and motivate people to take action. Particularly, people may be more motivated to act if they are able to envision better ways of living (Glasser, 2007; Greenwood, in press; Tilbury, 2007; Vargas, 2008), believe that change is possible (Miller, 1998), set goals for change (Locke & Latham, 2002; McKenzie-Mohr & Smith, 1999), and work alongside others (Kemmis & McTaggart, 2005; Mordock & Krasny, 2001; C. Reid et al., 2006). The combination of these areas was shown to be successful throughout the research. For example, the envisioning exercise during the first focus group gave participants the opportunity to think about and discuss their hopes and dreams for the future. This helped them establish what types of change they wished to see and/or hoped to work towards. In addition to this, the belief that change was not only possible, but also essential to sustainability, prompted many of the participants to act. More specifically, because they tended to feel that people's actions were capable of impacting the world, negatively or positively, this influenced them to take actions that they felt to be in line with sustainability. Furthermore, having the participants set goals for change helped them stay task-oriented, monitor their own progress, and focus on the actions they had set out to do. Expressing these goals publicly (in front of their family members and the other participants) also helped keep them committed to these goals. Lastly, this study highly encouraged participation with and alongside others. The support and pressure that participants received from their family members and the other participants successfully encouraged them to pursue action and stay dedicated to their goals. Therefore, encouraging people to envision a better future, believe that change is possible, set goals to work towards change, and participate with others can help motivate people to take action.

Unfortunately, both the research literature and the findings of this study suggest that there are barriers that limit and/or discourage people's participation in sustainable action. For example, McKenzie-Mohr and Smith (1999) stated that a significant barrier is that people do not know what to do. In the case of this research, some of the participants expressed that they did not know what to do beyond what they were already doing; therefore, many of them felt that getting new ideas from the other participants was an extremely valuable part of the study, as it helped them discover new ways they could engage in action. Kaplan (2000) also mentioned how people are often prevented from engaging in sustainable action because of a lack of environmental choices, social support, and infrastructure. Similarly, these barriers were mentioned by the research participants as well (see Chapter 4: The challenges and barriers identified by participants and

Chapter 4: Challenges encountered by participants as they attempted to act). The literature also states that "environmentally friendly" actions are considered to be inconvenient, expensive, time consuming, not enjoyable, not cool, and unsafe, while the people who practice these actions are viewed as part of a counter culture (Glasser, 2007). The participants encountered all of these areas, to varying degrees, as they attempted to achieve their action goals (see Chapter 4: Challenges encountered by participants as they attempted to act). Thus, although the literature review considered these challenges to be generalizations, the results of this study prove that there is a lot of truth to them as well. Lastly, P. Hart (2007), Jasanoff (2003), McKenzie-Mohr and Smith (1999), and Orr (2002) all stated that barriers are often times psychological or a matter of perception, in that the way one frames and approaches a situation determines what one can do and learn. This was found to be true in a few cases throughout this research. For example, a few of the participants identified barriers that were, arguably, a matter of perception (e.g., perceived financial barriers, an assumed lack of support, and the perception that something was more difficult than it actually was). In conclusion, these examples confirm other work that has been done on the barriers to sustainable action.

Despite the barriers to sustainability, one of the most important messages that one can take away from this research is that people are capable of changing. Even though the complexities of change may mean that change takes months, years, or even decades to get underway (McClaren & Hammond, 2005), it does occur, as was shown to be true in this study as well as by multiple researchers in a variety of disciplines: DiClemente and Prochaska (1998), Gershon (2010), Hostetler et al. (2008), Locke and Latham (2002), McKenzie-Mohr and Smith (1999), Miller (1998), OECD (2011), Ostrom (1990), C. Reid et al. (2006), and Rogers (1995). Therefore, if we know that people are capable of change, the question we should be asking is: how do we facilitate change that is not only purposeful and meaningful, but also directed towards improving the sustainability of ourselves, our communities, and our ecosystems?

Critical thinking

The types of thinking that took place during the study reflected how other researchers have defined critical thinking. Specifically, some participants' thinking reflected what Mason (2008) stated about critical thinking being the capacity to: ask probing questions; think reflectively; think beyond one's own arguments, values, and assumptions; and see the "bigger"

picture. For example, Scott Rose (28) asked multiple questions about the decisions he made day-to-day, while Winn (36) and Max Brown (37) felt that a strong part of the research for them was having to reflect on their actions. Furthermore, the participants were asked to reflect upon and discuss ideas with others, which pushed them to understand the world through others' experiences and perspectives. This confirms that critical thinking, "is never detached from the world [and] its people" (Kincheloe, 2004, p. 6). Furthermore, Kincheloe (2004) expressed that critical thinking should lead people to become more oriented towards the common good. In this study, participants thought about how people have different (and sometimes fewer) opportunities to participate in sustainability depending on their culture, gender, location, or socioeconomic status. This type of thinking, as Kincheloe (2004) stated, can lead to better understandings of ourselves and others, as well as challenge issues of power. As Winn Brown (36) said after hearing Laura Frost (36) talk about her upbringing in the Philippines, "I think lots of times because we live in an affluent society and because we perceive our society as superior, it's easy for us to feel like we have the right to do whatever we want environmentally. There's a sense of entitlement." Therefore, in conclusion, the thinking that occurred throughout the research was in line with how researchers in the field have defined and understood critical thinking.

The participants in this study expressed that critical thinking can increase people's abilities to make better and more informed decisions regarding sustainability, as have researchers such as Krasny and Bonney (2005), Tilbury (2007), and Tilbury and Wortman (2004). For example, some of the participants discussed how critically thinking about their actions prompted them to act. They also acknowledged that critical thinking, reflection, and awareness could better position people to examine whether their lifestyles were aligned with sustainability, which, in turn, could lead people to make better and more informed decisions. However, the participants also questioned whether critical thinking, reflection, and awareness were always enough to prompt people to act. For example, Scott Rose (28) did not feel that critical thinking necessarily led people to, "step up to a higher ideal," while Jackie Lake (33) stated how her actions did not always align with what she reflected on or valued (e.g., she understood and thought about the negative impacts of plastic packaging, but still bought things that were packaged). Therefore, although both the participants in this study and other researchers have found that critical thinking can lead people to take actions that are in line with sustainability, it may not always be effective in encouraging change on its own.

Social learning and collective interaction

Our relationships and interactions play heavily into our learning; as such, this has led some researchers to focus their work on social learning (Lave, 2009; McKenzie, 2008a; Wenger, 2009; Wentzel & Watkins, 2011) and, more specifically, the role of social learning in environmental education (Capra, 2007; Dyball et al., 2007; Glasser, 2007; McGregor, 2009; Tilbury, 2007; Wals, 2007; Wildemeersch, 2007). Due to the fact that one of the most significant findings of this study was that participants' learning, thinking, and actions were fostered extensively by relationships, this study makes a contribution to the area of social learning, both in general terms as well as in relation to environmental education. For example, some of the outcomes of social learning that have been identified by researchers such as R. Hart (2008) and West (2009) are the sharing of practices and experiences, collaboration, knowledge generation, and creativity. All these outcomes occurred during the research. For example, participants shared ideas, explained the environmental actions they had taken and were thinking of taking, told stories of their lives, collaborated on action (particularly with their family members), shared knowledge and expertise, and helped others identify creative environmental solutions. The process of social learning has also been found to lead to: action competence (Hart, R., 2008; McKenzie-Mohr & Smith, 1999); better understandings of oneself, society, and the world (Greenwood & McKenzie, 2009; Haury, 2005); and community building (Hart, R., 2008). Again, results such as these occurred during the research. For example, participants pursued and achieved many of their action goals, reflected on how their lifestyles and decisions had an impact on the world, discussed societal issues (e.g., politics, education, equity), and formed a supportive and meaningful community. Lastly, it has been argued that social learning plays a significant role in the actions, values, and ways of thinking that are passed through a community, due to the power of, for example, observation, modeling, and imitation (Blewitt, 2006; McGregor, 2009; McKenzie-Mohr & Smith, 1999). The findings of this study confirmed the significance of social learning through modeling, particularly in terms of action. For example, a few of the participants adopted actions that were being modeled by other members of their family, other participants, or community members. In addition to this, some of the participants' actions influenced how their friends and coworkers acted. These findings also confirm the results of the empirical studies outlined by McKenzie-Mohr and Smith (1999) and the work done by Miller and Rollnick (2002), both of which suggest that people's participation in change is deeply affected by interpersonal

interactions. Therefore, the significance of social learning in this study confirms that social learning can, indeed, play a key role in the field of environmental education. In addition to this, as many of the studies done on social learning have been theoretical in nature, this research adds to the *empirical* base in this area.

Researchers have found that collective interaction can increase social support (Kaplan, 2000; Vargas, 2008; Wentzel & Watkins, 2011), levels of motivation and engagement (Wentzel & Watkins, 2011), feelings of power (Kaplan, 2000; Vargas, 2008), and a sense of belonging (MacKay, 2005). These findings are significant in that the research participants' interaction with family and community members led to similar results. For example, the participants formed a supportive community, felt that participating alongside family and community members improved their levels of motivation and enjoyment, experienced feelings of personal and collective power, and felt less isolated and "fringe." Furthermore, Rudkin and Davis (2007) stated that those who experience social connections and feel a strong sense of community tend to participate in their communities and, as Vargas (2008) said, "make good things happen" (p. 34). These findings were also found to be true within this study, as some participants started to reach out to the community to a greater extent as they began to better understand that living sustainably meant going beyond themselves and their families. Therefore, if one considers both the literature and the research findings, it can be suggested that the results of the study--in terms of fostering support, motivation, engagement, feelings of power, and community--may not have occurred to the same degree without collective interaction.

Perhaps the most significant contribution this research makes to the literature is that it furthers our understandings of how environmental education can engage families in sustainability through action, critical thinking, and social learning. For example, Phillip Payne (2005a, 2005b, 2010), who has done extensive research in the area of green families, has stated that there has been very little empirical work done on family environmental action and learning, while family facilitator, Roberto Vargas (2008), has found that people do not often encourage or enlist those closest to them (their family members) to take part in meaningful change. Grønhøj (2006), who has researched families' participation in green consumerism, also recommended that, "when researching prerequisites for, and influences on, green consumer practices, the family [rather than individuals] may have to be used more often as the appropriate unit of analysis" (p. 501). Therefore, this research adds to the research literature in the area of family

environmental practice and offers an empirical example of how to successfully engage families in sustainability.

Although families have been somewhat overlooked as sites for environmental change, there is a lot of potential for them to be leaders in and champions of sustainability due to their abilities to work together and influence each other. For example, researchers such as Grønhøj (2006), Miller (1998), and Payne (2005a, 2005b, 2010) have found that people are considerably influenced by those they live with; this was also a major finding of this research. For instance, family members in the study supported, pressured, and monitored each other, as well as worked towards common and individual goals together. Furthermore, Chawla (2008) found that family is frequently noted as the reason that environmental activists and educators are involved in, concerned about, and committed to environmental issues. This rang true for some participants as well. For example, Lily (11) and Anna Brown (10) attributed their involvement in environmental action to their parents, while Josh Woods (30) felt that he had gained certain environmental ethics from his parents and grandparents.[19] Therefore, the findings of this research are important in that they confirm the work of other researchers who have demonstrated that families may be a good starting point to engage people in environmental change (Grønhøj, 2006; Payne, 2005a, 2005b, 2010).

Education and educators

As discussed in the previous section, Chapter 4: Learning, learning occurs throughout our day-to-day experiences, relationships, and interactions; therefore, rather than rely on universal content or approaches to formal and informal education that focus on primarily knowledge generation, environmental education should reflect that learning occurs in numerous ways and stems from a variety of sources. For this reason, the environmental education program developed for this research was not used to tell participants what it was they should know or do, nor to teach specific subject matter; rather, learning and action were fairly self-directed and emerged through the participants' interactions and relationships with other people, ideas, and their own

[19] About half of the participants--Winn Brown (36), Max Brown (37), Jason Lake (33), Jackie Lake (33), Mia Lake (14), Josh Brown (30), Scott Rose (28), and Laura Frost (36)--stated that some of their family members outside of the study (particularly their parents and siblings) were not interested in environmental issues or actions and were, in some cases, even quite *unsupportive*. Yet, despite a lack of familial support, these participants still became involved in and advocates of sustainability. This suggests that, although family members highly influence each other, family must not be considered the *only* influence in a person's life.

thinking. Giving the participants a certain degree of responsibility and autonomy over what they pursued and how they pursued it seemed to result in learning, interest, problem-solving, commitment, and participation. Not only does this challenge the notion that solutions and answers that address sustainability will *only* come from experts (e.g., academia) (Payne, 2005b; Saul, 2001), but it suggests that educational efforts that wish to engage people in environmental learning and action might benefit from allowing a certain degree of flexibility and freedom in their programming. In addition to this, it demonstrates how our educational efforts must go beyond simply increasing knowledge, as information is only one of many sources of learning (Capra, 2007; Kollmuss & Agyeman, 2002; McKenzie-Mohr & Smith, 1999; Tilbury & Wortman, 2008; Stevenson, 2002). Or as Mark Frost (45) said, knowledge of the "roadmap" to sustainability will not get us there alone; what we need is social support and guidance. To further emphasize this point, despite being given access to numerous action and informational resources, the participants did not use them. This reaffirms that a lack of knowledge may not be the largest barrier to sustainable action. In conclusion then, the most effective forms of environmental education may be those that reflect the fact that people learn in numerous ways and from a variety of sources, as well as integrate some amount of flexibility into their educational content and forms of teaching.

It should also be acknowledged that much of the learning, interaction, thinking, and action that occurred during the research was *facilitated*; in other words, the study was used as, "a way of organizing learning and communities of learners" (Wals & van der Leij, 2007, p. 18). The significance of this deserves attention, as it suggests facilitation was key to the outcomes of the study. Arguably, without the facilitator (me) and the facilitated program (the study), the participants would not have involved themselves in environmental thinking and action, nor organized with their own or other families, to the same degree or in the same ways. For example, a great deal of the participants' critical thinking was prompted by the questions asked during the interview and focus group questions, while the actions they developed and pursued were highly linked to the photovoice project, the process of goal setting, and the other participants (family and non family). Although green families can form without any sort of formal intervention or participation in facilitated programming (as Payne (2005a, 2005b, 2010) has shown through his research on green families), the empirical findings of this research suggest facilitated environmental education programs can form and/or strengthen families' commitments to

sustainability, lead to outcomes that participants feel are targeted and desirable, and link people to others who are attempting to change in similar ways.

The literature review and research findings both highlight the importance of having environmentally supportive educators. For example, researchers such as Paul Hart (2003) and Louise Chawla (1998) state that educators are able to facilitate environmental learning, action, and values, which, in turn, helps to define students' environmental sensitivities. Both student- and teacher-participants in the research also acknowledged this. For example, some participants attributed their environmental awareness and value systems to their experiences in school, which is important in that it highlights the significant influence that formal education can have on students. Not only that, but as the parents in the study expressed, they were persuaded to make environmentally-centered decisions because their children discussed at home what they learned in school (e.g., how to recycle, the impacts of climate change). Therefore, because students play a significant role in educating and influencing the people in their homes, particularly their parents, one of the best ways to engage adults in environmental action, thinking, and learning may be to start by educating their children (Grønhøj, 2006; Istead, 2009; Kahn, P., 1999; MacGregor, 2006; Payne, 2005a, 2010). Again, this stresses the importance of having educators who integrate sustainability into their teaching. Unfortunately, the participants also stated that they had had numerous encounters with environmentally unsupportive teachers, confirming P. Hart (2004) and Wals' (2009) findings that there is still a lack of educators who are involved and trained in environmental education. Therefore, as found by both the participants in the study as well as other researchers in the area of education, despite the importance of having environmentally supportive teachers in our school systems, there is still a deficiency in this area.

Implications for Future Environmental Education Practice and Research

It has been well recognized that environmental education has a very crucial role to play in sustainability; however, there is still much work to be done. Outlined below are some suggestions for future practice and research based on what was learned during this study.

Participants expressed that being involved in the study was not only personally valuable but that they would also recommend a program like it to others; therefore, future research and practices may wish to create and/or offer similar programming to that which is outlined in this thesis. For example, common words used by the participants to describe the study included:

helpful, useful, motivational, supportive, and powerful. For these reasons, Winn Brown (36) suggested that the program would be valuable to others as well. Anna Brown (10) agreed, stating, "I think it would be really useful for [others] because it would help get them motivated to start doing something. Because they probably want to do these, want to be doing something, but they're not." Josh Woods (30) further explained the value of participating in the research:

> I think this experience would be valuable for a lot of people. … There's a lot of doubt and skepticism and just honest questions or curiousity and a lot of things could be cleared up in a group like this. Talk face to face with someone, not a book or some website, and you get first hand experience. And the benefit of that other person's first hand experience passed on to you. So you can think, now I can try that because I heard from Max, and Max did it. So if Max can do it, I can try it too … [and there's] support after. Like you know that, if I try something, I can come and next week, I can come and ask, 'cause if it didn't work, he has something figured out. … So, I think that kind of support would be beneficial for a lot of people.

Participants said they would recommend the program to extended family members, as well as to other families, individuals, friends, workplaces, the school board, and teachers. For example, Mia Lake (14) felt that, "it would be kind of interesting if the school board actually did that, where all the teachers had to do this! And then it would actually trickle down to the students if they actually got something out of it, which most of them would." Josh Woods (30) also said that he would be like to be involved in a program like this again if it was offered to the public in the future. Even Nicholas, age 9, stated that when he is grown up and has kids he would like to sign up for a similar program. Therefore, because there is great potential for programs such as the one piloted for this research to engage citizens in sustainability, future research and practices may wish to focus on creating and offering similar environmental education programming.

To build on the paragraph above, future research and practice in the area of sustainability may wish to initiate studies and programming around the three areas of action, critical thinking, and social learning. For example, although this research was based on the understanding that our learning is influenced by the multiple relationships and interactions we have on a day-to-day basis--with places, action, people, materials, experiences, nature, ideas, other species, etc.--its

scope was narrowed down to specifically focus on (a) action and hands-on experience, (b) critical thinking and reflection, and (c) social learning and collective interaction. The significance of linking these three areas in relation to sustainability became clear throughout the research. For example, the participants frequently linked sustainability to: taking actions that were environmentally and socially responsible; thinking in ways that led one to value the earth and understand one's impacts in/on the world; and finding or providing social support that would enable people to act responsibly, think deeply, and value the earth and others. Not only that, but providing the participants with the opportunity to focus on these three areas for five months led them to change some of their actions, critically think about their lifestyles as well as broader sustainability-related issues, learn from others, and form meaningful relationships. This suggests that future research and practice that integrates action, critical thinking, and social learning may experience a similar degree of success.

This particular environmental education program successfully engaged participants in environmental learning, thinking, and action; however, one is only able to conclude that it was effective for people who were *already* interested in change. Therefore, future research may wish to explore how to engage families, communities, and/or individuals in environmental change who are *not* interested in pursuing more sustainable lifestyles (McKenzie-Mohr & Smith, 1999). For example, all of the participants were interested and involved in environmental action before the research started. Therefore, as some of the participants noted, the results may have been quite different had there been a group of participants who were not initially interested in changing their lifestyles. Furthermore, because the research was a voluntary, opt-in program, this suggests that the participants had, "a greater interest in the topic than others in the community" (McKenzie-Mohr & Smith, 1999, p. 27) (the participants acknowledged this as well). Therefore, finding ways to engage people in environmental change who are not interested in sustainability may lead to some very important, not to mention, interesting, results.

Although it is and will be important to find ways to include people in environmental change who are not presently engaging in it, it is also important to support those who are willing to adopt more sustainable lifestyles. For example, participation and change may prove more likely if participants start with their own personal concerns as a source for investigating one's own life and circumstances (Cahill, 2007). Furthermore, Everett Rogers (1995, 2002) discusses how "early adopters" are important to the dissemination of new ideas and innovations because

those who *want* to change may attract others to adopt the same (or similar) ideas and actions. Not only that, but considering that many of the participants did not feel that environmental actions and values were highly encouraged (and, at times, even discouraged) by other people and society itself, more efforts should be made to support those who have the desire to change and/or act sustainably. Ultimately, although we should continually try to engage more and more people (including the disinterested) in environmental action, thinking, values, and learning, we should also look for ways to support the people who are willing (even excited) to adopt new ways of living because this support could help them pursue and spread the types of change that will have a positive impact on our world.

Generalizing the results of this study to the rest of the population would not only be difficult, but it would also be unwise (McKenzie-Mohr & Smith, 1999). More specifically, it cannot be assumed that all groups of people would have participated in the same ways that the small number of participants involved in this study did. However, rather than seeing this as a downfall of the research, it should be noted that, before offering any program on a community level, it should be piloted on a small scale in order to prove it has worked with a certain segment of the population (McKenzie-Mohr & Smith, 1999). After an initial pilot, refinements and improvements can be made (McKenzie-Mohr & Smith, 1999). Therefore, this initial program acts as a framework for those who may wish to offer similar programs in their communities or with different segments of the population in the future.

Due to the fact that research is highly influenced by those involved, it would be interesting to see what the results would be if similar environmental education programs were offered to (even run by) different people. For example, by including different participants and a different researcher, some interesting results might surface regarding the contexts and realities of various individuals and groups. Not only that, but due to the lack of diversity in this particular study (see Chapter 3: Participants), future research could address this gap by attempting to gain a clearer picture of how environmental education programs affect diverse portions of the population. More specifically, because most of the participants in this study were similar in (a) age (adults ranged from 28-45, there were no grandparents, and children ranged from 7-14), (b) socioeconomic status (middle class), and (c) profession (primarily educators), it would be interesting to not only examine why this demographic is so inclined to become involved in programs such as this, but also what the results would be if a more diverse group of people

participated. Therefore, future research and practice may wish to encourage and engage people from other demographics to join similar types of environmental education programming.

The participants in this research described a number of things that either prevented or encouraged them to participate in environmental change (see Chapter 4: Challenges encountered by participants as they attempted to act and Chapter 4: Supportive factors encountered by participants as they attempted to act); however, more can be done to examine the barriers and supports faced by different people--individuals and groups--who wish to live more sustainably. For example, looking at the conditions that help facilitate or discourage environmentally responsible action is an important step in understanding why people act the way they do (McKenzie-Mohr & Smith, 1999). Furthermore, this type of information could lead us to better understand how to influence people's actions and promote sustainable activities (McKenzie-Mohr & Smith, 1999), which could help our political and community leaders, policy developers, and educators make more informed and strategic decisions. When examining barriers and supports, however, we must consider people's contexts (e.g., socioeconomic circumstances, amount of time, location, gender, cultural background, forms of oppression experienced, etc.), as these will impact how and if people are able to participate in environmental decision-making. Ultimately, there are various challenges and opportunities linked to environmental change; therefore, in order to understand how to best support and encourage sustainable living, future research might wish to identify the barriers and supports faced by different individuals and groups.

This research study is only able to provide a five-month snapshot of participants' lives; however, it would have been interesting to see what would have changed or been discovered had the research program continued for longer. For example, not only did some participants express that they wished the program had gone for a whole year, but they also indicated that their actions, challenges, and opportunities would change depending on the season.[20] In addition to this, a longer period of time would have allowed them to engage in more activities. This suggests that environmental education research that wishes to examine the barriers and supports of those who are attempting to change, as well as programs that desire to engage people in sustainable action, could benefit from studies that extend over a longer timeframe. Therefore, if similar programming is offered in the future, more accurate findings and higher levels of engagement

[20] The program started in early-autumn and ended mid-winter.

may be obtained if participants are examined and involved for a longer period of time and/or over a number of different seasons.

Participants expressed that they would have liked to have had more involvement with the other families during the program; therefore, further research or practice in this field may wish to include a higher degree of social interaction between participants. For example, some suggestions were to have more meetings, as well as a medium to interact with the other participants throughout the research (e.g., a blog[21]). Some participants also expressed that they would have enjoyed the opportunity to demonstrate what they had been working on to the others in the study (e.g., combining experiential and social aspects of learning). Another suggestion was to visit each of the participating families' homes so that participants could offer help on projects (e.g., the group could help a family set up a backyard compost) and identify the environmental gaps in how a family lived (e.g., the group could suggest ways a family could improve their environmental practice). All in all, participants felt there was a lot of value in participating with others; therefore, further research that wishes to examine how to engage people in environmental action, thinking, and learning could greatly benefit from including a high degree of person-to-person interaction.

Although some participants expressed the desire for a "roadmap" to outline whether or not they were on a path to sustainable living,[22] they were also interested in learning about the multiple ways in which one could pursue sustainability. Therefore, rather than developing prescriptive, one-size-fits-all approaches to encourage people to participate in environmentally responsible action, it may prove more beneficial for practitioners to allow a degree of creativity and flexibility so that the "what" and "how" of sustainability can be adapted to different contexts and taken up in a variety of ways. For example, with the exception of the Frosts who looked through the Saskatchewan Environmental Society's *Energy Awareness Training* manual, the participants did not use the action and informational resources provided to them at the beginning of the study (see Chapter 3: Action and informational resources); instead, many participants chose to locate resources of their own. This suggests that prescriptive techniques to education

[21] At the end of the study, the participants expressed the desire to keep in touch. Therefore, Winn Brown (36) and I set up a blog for the group (see http://saskecofamilies.blogspot.com). Unfortunately, however, it was not used much. This may suggest that a blog should have been set up earlier in the study so that participants could have interacted with each other throughout their involvement in the program.

[22] For example, clearer information regarding what to do to decrease one's environmental impacts.

may not be fully successful or readily taken up because the learning does not begin with the learners' interests. As Kaplan (2000) explains:

> People are likely to resist doing what they are told to do and may even attempt to undermine the entire effort; furthermore, such an approach would be a waste of talent and ingenuity. Telling people what to do ignores the possibility that there may be significant local variants in how best to achieve a particular goal. Being responsive to such local variation might lead to a diversity of solutions, providing the basis for a culture of exploration, innovation, and involvement that will be both satisfying and responsible. (p. 505)

Therefore, although future research and practice in the area of environmental education may wish to provide people with somewhat of a "roadmap" to sustainability, these approaches should also give people the decision-making power and flexibility to pursue action and learning in ways that interest them.

A possible criticism of this study may be that it was too focused on personal rather than societal transformation. Therefore, further studies may wish to place more emphasis on encouraging participants to pursue actions that have a larger community impact and/or that challenge systemic barriers. For example, the participants in this study were neither required nor pushed to focus on effecting change on a large scale or participating in their communities outside of their families or the research group. Instead, it tended to focus on household change. This may have prevented participants from becoming involved (or seeing the potential opportunities to become involved) in larger-scale change (e.g., by going beyond individual action to challenge the social, political, and economic systems that are damaging to humans, other species, and the planet). As such, researchers and practitioners who wish to encourage people to play a more active role in their communities and pursue actions that have a large community impact must go beyond simply focusing on personal action.

In terms of analysis, there are a number of factors that made it difficult to determine exactly what the impacts of this study were on the people who participated in it. Therefore, there exists a need for future research to not only look more deeply into how people are influenced by educational programming, but also to provide a better understanding of the future impacts of a program by conducting follow-ups with participants/students. For example, Braus (2004) states

that it is extremely difficult to measure how a program contributes to attitude and behaviour change, or to gauge how educational experiences lead to a more sustainable future. Payne (2010) also notes how difficult it is to fully account for the everyday actions and interactions within the home; this is due to the vast array and dynamic arrangement of family roles, responsibilities, and norms, as well as the contextual influences at play such as space, time, history, society, politics, culture, and environment. Furthermore, because no follow-up with the participants is currently planned, it cannot be stated with certainty that they will keep up with and/or expand on environmental action, despite them stating that they were committed to doing so. Not only that, but because the support gained from being with the other participants played an important role in increasing motivation and action, it is possible that some of the participants' progress has dropped off now that the study has been completed. Lastly, some impacts of the study may not emerge until down the road, especially if we consider change to be a gradual process (see Chapter 4: Actions pursued by participants). Overall, examining how/if a program leads to change is a complicated, even messy, process; therefore, it would be beneficial for future research to look more deeply into how people are influenced by educational programming. In addition to this, better understandings of the impacts of education may be gained if a number of ongoing follow-ups are conducted with those who had been involved in the educational program.

If we are to work effectively towards sustainability, future research and practice should place a large emphasis on equipping educators with the knowledge, values, and support needed in order to engage them and their students in environmental action, thinking, and learning (not to mention, needed for them to challenge the educational practices that are failing to effectively and appropriately address sustainability). Although the number of educators who are promoting more ecologically-focused learning is growing (Sandlin & McLaren, 2009), there is still a deficiency of teachers involved and trained to teach in the area of environmental education (Hart, P., 2004; Wals, 2009). Not only that, but many parents and children in both this study and Payne's (2010) study on green families felt that most teachers are not interested in environmental issues (noting that some educators even *condone* unsustainable practices). This is not to say, however, that educators are not interested in environmental education. As the educators in this study expressed, teachers are not well supported by the education system to incorporate environmental education into their teaching. Therefore, what is needed is research that identifies the best ways to support and encourage educators to participate in and deliver environmental education that, as this

research suggests, uses critical thinking, action, and social interaction as ways to engage learners in sustainability.

Future research that examines the links between educators' work and personal lives could lead to some interesting findings, such as how to better support and encourage teachers to become involved in environmental education. For example, in what ways do educators incorporate what they have learned in their personal lives into their work places and teaching practices? As Paul Hart (2004) states, "teachers have influential theories and values about environment and education which guide their actions in environmental education" (p. 157). Furthermore, without trying to understand how people live and practice (or do not practice) environmentally-related behaviours in the home, environmental curricula may simply be based off best-guesses and assumptions and, as a consequence, have a higher risk of failing (Payne, 2005b). Thus, looking at the ways in which educators' home and work/school lives are connected (e.g., how their out-of-school lives affects how they deliver curricula and programming) could help us find ways to better support teachers' involvement in environmental education.

Dissemination

An important component of research is to disseminate the results. Therefore, the findings of this research will be submitted to a variety of academic journals and presented at a number of conferences. For example, it is hoped that the results will be published in environmental education journals (e.g., *The Canadian Journal of Environmental Education* (CJEE); *Environmental Education Research* (EER)) and/or in open access journals. In addition to this, although I have already presented the findings at a number of academic conferences, such as *The North American Association for Environmental Education* (NAAEE) conference in 2010 and *The Canadian Network for Environmental Education and Communication* (EECOM) conference in 2011, there may be more opportunities to present in the future.

Results will also be circulated beyond academia in order to reach a broader audience. More specially, the research may be of interest to teachers, parents, students, the school board, environmental organizations, and Community Associations. Therefore, efforts will be taken to have the findings presented in local newspapers, newsletters, and publications put out by

community groups, local organizations, and educational institutions. There may also be opportunities to communicate the results through public presentations.

This research could be transformed to fit the needs and complexities of a variety of participants and communities. In fact, I have considered offering the same (or a very similar) program to others in Saskatoon in the future. This could potentially be done in partnership with the municipal or provincial governments, local organizations, Community Associations, or the educational system (e.g., as a program offered to the educators and/or students of particular schools or as a professional development opportunity for teachers). Not only that, but because this research is licensed under the Creative Commons Attribution-ShareAlike 2.5 Canada License, this allows others to use the information presented in this thesis to create and offer similar programming in their own communities. Ultimately, I hope that this research contributes to further environmental education programming in the future.

Government uptake and support could lead this and other environmental education programs to become widely available to people in Saskatoon, across Saskatchewan, and beyond. For example, support for "public education and awareness" has been identified as a priority in the Government of Saskatchewan's *2011-2012 Ministry of Environment Plan* (p. 6). Likewise, the City of Saskatoon's Environmental Services mandate is: "To protect, conserve, and improve the environment for the benefit of Saskatonians through regulation, enforcement, policy, planning, *education, and programming* [emphasis added]" (City of Saskatoon, 2011, para. 6). Therefore, as plans to offer this program to the community continue to develop, approaching the government for support and potential partnership will be top priority.

Lastly, although the participants were given the opportunity to read and discuss the results before they were submitted to an external examiner (see Chapter 3: Legitimacy), the completed thesis will be made available to the participants as well.

Conclusion

The last chapter of my thesis highlighted how this study contributes to the research literature, offered suggestions for future environmental education practice and research, and outlined how the results will be disseminated. In terms of the study's contributions to the literature, it confirmed the work of other researchers who have argued, for example, that: sustainability it understood and applied in various ways; there are numerous challenges and

barriers to living sustainably; participatory action research studies can foster action, critical thinking, social learning, support, motivation, engagement, feelings of power, and community; and education should acknowledge that learning occurs in numerous ways and from various sources (e.g., experiences, relationships, etc.) and, as such, use approaches that are flexible, creative, and reflect learners' interests. The discussion went on to suggest that, although people adopt new actions based on their relative advantages, straightforwardness, measurability, and familiarity, people seek actions that will challenge them as well. Lastly, one of the most important messages this chapter stressed was that, not only can and do people change, but efforts to engage people in sustainability may prove most effective if they start at the level of family.

This final chapter of the thesis outlined a number of suggestions for future environmental education practice and research. For example, this study successfully engaged participants in environmental learning, thinking, and action; therefore, further research or practice may wish to use this study as a framework to involve more people in sustainability (e.g., those who are willing to adopt more sustainable lifestyles, those who are less (or not at all) interested in sustainability, diverse segments of the population, etc.). Furthermore, if similar studies are run in the future, more emphasis could be placed on involving participants for longer periods of time, over a number of different seasons, and/or in actions that have significant community impacts. Participants also expressed they would have liked to have been more involved with the other families during the study; therefore, further research or practice in this field may wish to include a higher degree of social interaction between participants. More research could also be done that deeply examines the barriers and supports to sustainably and how these vary between contexts (between people, places, etc.). Lastly, because environmentally supportive educators were seen as critically important to sustainability, finding ways to support and encourage educators to participate in and deliver environmental education continues to be an area where more attention is needed.

This chapter ended by outlining how I plan to disseminate the findings of my research. In general, it is hoped that the research results and framework can be used and accessed by those who can benefit most from the results (Broido & Manning, 2002): participants, educators, researchers, and community members.

Presented in this thesis more broadly were a number of findings that explored the research participants': understandings of sustainability; involvement in action and change; engagement in critical thinking; learning with/from others; and insights into the role of formal education and educators in sustainability. The results highlighted how families--as individual units and as collectives--can play a significant role in the transition to more sustainable ways of living. Furthermore, this study makes both empirical and theoretical research contributions by revealing how environmental education programming and research can engage families in sustainability through action, critical thinking, and social learning. Last, this research provides yet another example of how the field of environmental education is crucial if we are to equip people with the ability to act, think, and participate with others in ways that do not undermine the ecological (and social) processes that support life, health, and wellbeing.

In order to live well on the earth and with each other, we must first acknowledge that humans are inherently connected to nature, just as nature is inherently connected to us (Anderson, 2010). Accepting this may lead to the inclusion and consideration of other living and nonliving things that have not generally been given voice when decisions are being made, despite them being important (if not critical) stakeholders. Not only that, it may lead us to understand that our "place" in nature requires us to support, care for, and respect the human and nonhuman relationships we and other beings need in order to obtain a high quality of life, not to mention, survive.

Although there has already been a tremendous amount of work, advocacy, activism, and research done in the area of sustainability (this research being just one of those efforts), there is room for much, much more, due to the fact that our current way of living is unsustainable. Not only that, but as we and our world change, we will face the ongoing challenges of having to adapt to shifting circumstances, become creative problem-solvers, and seek out new opportunities and ways of living. These challenges will require us to think deeply about our relationships, the actions we take, and the values we embody. However, although these challenges lie before us, these are not reasons to give up; they are reasons to believe in and work together towards our collective wellbeing.

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Appendices

Appendix A: Budget

Remuneration for participation ($500 x 5 families)	= $2500
Environmental learning and action resources	= $1295 (of the allotted $2500)
Three focus groups (food, office materials, etc.)	= $540
Space rental ($25/hour x three 3-hour focus groups)	= $225
Misc. (printing, travel, microphone, etc.)	= $200
Recruitment posters	= $115
Total monies spent	**= $4875**

Appendix B: Timeline

When:	What:	Objective(s):
May to August, 2010	Participant recruitment	Find 4-5 households to participate in study.
August 10-28, 2010	Initial meetings with each household (90 minutes)	Introductions. Go over participant and researcher responsibilities. Describe the research process and components. Assign photovoice project (see Chapter 3: Photovoice). Encourage participants to start writing in their journals (see Chapter 3: Personal journals). Answer any questions or concerns. Have participants sign consent forms (see Appendix D).
Early to mid-September, 2010	Photovoice projects	Have participants conduct photovoice project on their own time (see Chapter 3: Photovoice).
Mid-September to early October, 2010	Set goals and locate resources	Have participants set environmental action goals for the study (see Chapter 3: Goal setting). Have participants begin locating resources that may help them achieve their goals and/or engage them in environmental action and learning. E.g., encourage them to review the resources provided (see Appendix I and Appendix J) or locate their own.
October 6-16, 2010	First set of family interviews (90 minutes)	Conduct the first semistructured interviews (see Chapter 3: Semistructured family interviews).
November 20, 2010 1:00-4:00pm	First focus group (3 hours)	Conduct the first semistructured focus group (see Chapter 3: Semistructured participant focus groups).
December 5, 2010 6:00-9:00pm	Second focus group (3 hours)	Conduct the second semistructured focus group (see Chapter 3: Semistructured participant focus groups).
January 15, 2011 3:00-6:00pm	Third focus group (3 hours)	Conduct the last semistructured focus group (see Chapter 3: Semistructured participant focus groups).
January 19-31, 2011	Last set of family interviews (90 minutes)	Conduct the last semistructured interviews (see Chapter 3: Semistructured family interviews). Reimburse participants for resources purchased (if not done so already) (see Chapter 3: Monetary incentives). Give each household $500 for completing the study (see Chapter 3: Monetary incentives).

Appendix C: Ethics

UNIVERSITY OF SASKATCHEWAN

Behavioural Research Ethics Board (Beh-REB)

Certificate of Approval

PRINCIPAL INVESTIGATOR	DEPARTMENT	BEH#
Marcia McKenzie	Educational Foundations	10-72

INSTITUTION(S) WHERE RESEARCH WILL BE CONDUCTED
University of Saskatchewan

STUDENT RESEARCHERS
Shannon Dyck

SPONSOR
UNIVERSITY OF SASKATCHEWAN

TITLE
Examining How Involvement in a Participatory, Action-Based Environmental Education Program Affects Families in Saskatoon

ORIGINAL REVIEW DATE	APPROVAL ON	APPROVAL OF:	EXPIRY DATE
27-Mar-2010	04-May-2010	Ethics Application Consent Protocol	04-May-2011

Full Board Meeting ☐ Date of Full Board Meeting:

Delegated Review ☒

CERTIFICATION
The University of Saskatchewan Behavioural Research Ethics Board has reviewed the above-named research project. The proposal was found to be acceptable on ethical grounds. The principal investigator has the responsibility for any other administrative or regulatory approvals that may pertain to this research project, and for ensuring that the authorized research is carried out according to the conditions outlined in the original protocol submitted for ethics review. This Certificate of Approval is valid for the above time period provided there is no change in experimental protocol or consent process or documents.

Any significant changes to your proposed method, or your consent and recruitment procedures should be reported to the Chair for Research Ethics Board consideration in advance of its implementation.

ONGOING REVIEW REQUIREMENTS
In order to receive annual renewal, a status report must be submitted to the REB Chair for Board consideration within one month of the current expiry date each year the study remains open, and upon study completion. Please refer to the following website for further instructions: *http://www.usask.ca/research/ethics_review/*

John Rigby, Chair
University of Saskatchewan
Behavioural Research Ethics Board

Please send all correspondence to:

Research Ethics Office
University of Saskatchewan
Box 5000 RPO University, 1602-110 Gymnasium Place
Saskatoon SK S7N 4J8

Behavioural Research Ethics Board: Study Renewal Form

***Note, if your study is complete please fill out the study closure form available at:**
www.usask.ca/research/files/index.php?id=22
Please type in your responses, print, and then send the original signed copy to our office or fax to our office.
Double click on boxes to check.

1. Title: Examining How Involvement in a Participatory, Action-Based Environmental Education Program Affects Families in Saskatoon

2. Beh #: Beh 10-72 | **3. Expiry Date:** 04-May-2011

4. Contact Information:

	Name:	Department:	Phone Number, Email, Fax Number: (Provide only if different from previously submitted information)
Principal Investigator:	Shannon Dyck	School of Environment and Sustainability (SENS)	
Student Investigator:	Shannon Dyck	School of Environment and Sustainability (SENS)	
Contact Person:	Shannon Dyck and Marcia McKenzie (supervisor)	SENS and Educational Foundations & SENS	

5. Location where research will be conducted (if different from previously submitted information):

6. Does this research involve another institution? ☐ **Yes** ☒ **No**

7. Sponsor/Funding Agency: SSHRC funding was provided for 2010-2011

8. Have there been any changes to the study (study design, changes in recruitment material, procedures, consent process,) that have not already been reviewed and approved by the Beh-REB? ☐ **Yes** ☒ **No**
If Yes, please submit an amendment.

9. Have there been any changes in research personnel such as principal investigator, sub-investigators or students? ☐ **Yes** ☒ **No**
If Yes, please list the former/new personnel and position.

10. What is the current status of the study? (Please mark all that apply)

☐ **Recruitment has not yet started.**

☐ **Research participants are currently being recruited.**

☐ **Recruitment is closed**

☐ **Data collection involving participants is on-going.**
What was the original number of participants to be recruited? _____
How many research participants are currently in the study? _____
here a significant change in anticipated enrollment? Is yes, please explain. ☐ **Yes** ☐ **No**

☒ **The data collection is complete, remaining research activities are limited to data analysis only.**
How many research participants have completed the study? _____

☐ **The study is closed (Please complete the Behavioural Study Closure Form)**

11. Since receiving original ethics approval, have any ethical concerns arisen? ☐ **Yes** ☒ **No**
If Yes, please describe concerns in detail.

12. Provide a brief summary of study progress and results (if known).
The five-month environmental education program ran from Sept. 2010 - Jan. 2011. Participants engaged in environmental goal setting and action, discussed their environmental impacts (in journals, interviews and focus groups), and identified through photographs what they felt they were doing well environmentally (and not so well). Participants expressed that the programs was very interesting and beneficial.
I transcribed the interviews and focus groups and am now in the process of coding – no results to report as of yet.

13. Have any findings, new information or study modifications changed the risk level of this study for current and future participants?
☐ **Yes** ☒ **No**

If Yes, explain the changes made, how participants will be notified and whether or not participants will be re-consented.
14. Indicate the expected closure date of this study. December 2011

March 18, 2011

Signature of Principal Investigator **Date**

Behavioural Research Ethics Board: Study Closure Form

***Note, if your study is on-going please fill out the study renewal form available at: http://www.usask.ca/research/files/index.php?id=22**

Please type in your responses, print, and then send the original signed copy to our office or fax to 966-2069.

Double click on boxes to check.

1. Title: Examining How Involvement in a Participatory, Action-Based Environmental Education Program Affects Families in Saskatoon

2. Beh #: Beh 10-72 | **3: Expiry Date:** 04-May-2012

4. Contact Information

	Name:	**Department:**	**Phone Number, Email, Fax Number: (Provide only if different from previously submitted information)**
Principal Investigator:	Shannon Dyck	School of Environment and Sustainability (SENS)	
Student Researcher:	As above	As above	
Contact Person:	Shannon Dyck And Marcia McKenzie (supervisor)	SENS And Educational Foundations & SENS	

5. Sponsor/Funding Agency: Funding was provided by SSHRC (2010-2011) and SENS (2009-2011)

6. How many research participants were proposed for the study? Approx 15-20

7. How many research participants were involved in the study? 17

8. How many research participants have completed the study? 17

9. Have any research participants withdrawn from the study. ☐ **Yes** |X| **No**
If so, please provide a reason for each withdrawal (e.g. voluntary withdrawal, withdrawn by the principal investigator)

10. Since receiving original ethics approval, have any ethical concerns arisen that have not been reported to the Behavioural REB? ☐ **Yes** |X| **No** **If Yes, please describe concerns in detail.**

11. Provide a brief summary of study progress and results.
The five-month environmental education program ran from Sept. 2010 - Jan. 2011. Participants engaged in environmental goal setting and action, discussed their environmental impacts (in journals, interviews and focus groups), and identified through photographs what they felt they were doing well environmentally (and not so well). Participants expressed that the program was very interesting and beneficial.
I transcribed the interviews and focus groups, coded the data with NVIVO, and have written up the results and analysis.
Currently, my thesis is being reviewed and edited.

12. Please explain why the study is being closed. |X| **Data collection completed** ☐ **Other (please specify)**

_____ November 11, 2011
Signature of Principal Investigator **Date**

Appendix D: Consent Forms

UNIVERSITY OF SASKATCHEWAN

CONSENT FORM

You are invited to participate in a research project entitled, ***Examining how involvement in a participatory, action-based environmental education program affects families in Saskatoon.***

Please read this form carefully and raise any questions or concerns you have with the researcher.

Researcher:
Shannon Dyck
Master of Environment and Sustainability (MES), University of Saskatchewan
Phone: (306) 880-0373 Email: SLD492@mail.usask.ca

Purpose and Procedure:

The main goal of this research is to examine whether involvement in a participatory, action-based, family environmental education program leads to the production of environmentally responsible action on the part of participants that is effective, desirable, and maintainable in participants' daily lives. More specifically, if participants are asked to set action-based, environmentally responsible goals, both individual and shared, with the support of family and community members:

- Do they change their actions?
- Which actions do they change/make and why?
- What encourages them to set and achieve their goals?
- Does the collective context affect participants' abilities and motivation in ways that allow them to undertake and sustain action?
- What do participants find to be the biggest challenges or barriers to making certain changes?
- What role does the previous knowledge and experiences of participants play in their actions, motivations, goals, achievements, and barriers they set and experience?
- Do participants think they will be able to maintain their goals and/or set additional goals once the study is over?

Between September 2010 and January 2011, participants will be asked to participate in a 60-minute initial meeting to discuss the research objectives and to address any concerns/questions participants may have; document what actions they are doing that they feel to be "more sustainable" and "less sustainable" through a mini photovoice project (NOTE: these photographs will be used as a way for participants to personally connect to their actions and/or inactions so that they may reflect on them. **Participants are <u>not</u> to take photographs of identifiable people or places**); set environmentally responsible action goals that can be done individually and/or collectively and work towards achieving those goals; participate in three 3-

hour focus groups conducted with the selected families; participate in two 90-minute, semi-structured family interviews (one before and one after the focus groups. If participants would prefer a written version of these interviews, please let the researcher know); and keep track of the environmental actions they attempt to do and/or achieve in an action diary.

Potential Benefits:

Participants may acquire an enriched understanding of environmental issues and solutions; the ability to think critically about their day-to-day choices; stronger family relationships; community partnerships and friendships; an enhanced ability to communicate about environmental issues and solutions; and new opportunities to get involved in environmental activities. Furthermore, this research may contribute to the creation of more vibrant and sustainable communities, as well as a healthier environment. Note: these benefits are not guaranteed.

Participants will be paid $500 on completion of the research study.

Potential Risks:

Participants may experience tension and/or disagreement between family members or other participants; emotional distress due to added responsibilities; added stress due to trying new things; and/or loss of anonymity due to participation in group settings. However, this research is meant to encourage, motivate and challenge participants to make environmental changes in their lives, not to place participants in situations that may be potentially harmful or damaging. **All actions taken should be decided upon with the participant and their family and are done at the participant's own risk.**

Note: Participants will be removed from this study if their behaviour is seen as potentially harmful to themselves and others, or if they try to force other participants to act in ways against their own choosing. If a participant's involvement in the study is discontinued, whether decided upon by the researcher or the participant, the participant's data will be deleted from the research and destroyed.

If participation in this research results in family issues, please contact Family Services Saskatoon (306-244-0127) or Catholic Family Services (306-244-7773) for counseling. Or, if a mediator is required between family members or other participants, please visit Conflict Resolution Saskatchewan (www.conflictresolutionsk.ca) or contact Saskatoon Community Mediation Services (306-244-0440) to set up a conflict resolution session. The cost of any research related counseling or mediation service will be paid by the researcher (receipts are required). If you have any further questions regarding mitigating services and strategies, please ask the researcher.

Research Data:

During the interview and focus group process, a recording device will be used to gather all data efficiently (**NOTE: participants may request at any time that the recording device be turned off**). Data will be taken from the transcribed recordings and notes taken during interviews and focus groups. Information recorded in the participants' action diaries and themes presented in participants' photographs will also be used. Significant themes in the data and data

relevant to the research study objectives will be used in the research analysis. The research will include direct quotations to enhance the summaries of the findings.

Both informal and formal participant checks will be made. For example, after interviews and focus groups, the researcher will repeat key points that emerged in the dialogue and participants will be given the opportunity to clarify any of the points they had made. Formal checks will be made by having participants evaluate the legitimacy of the information taken from interviews, focus groups, and action diaries. Academic peer debriefing will also take place.

Research findings may be communicated in academic journals, during academic conferences, to local environmental organizations, to government, to teachers, to the school board, to curriculum developers, in local newspapers, on the Internet, or through community forums or presentations.

The data will be stored by Marcia McKenzie for a period of no less than 5 years in a locked cabinet at the University of Saskatchewan, after which time the data will be destroyed. Photos and action diaries will be returned to participants after being analyzed. During the stage of active research, the data will be stored by Shannon Dyck in a locked filing cabinet in a home office.

Confidentiality:

Due to the participatory nature of this study, some loss of confidentiality may occur due to the small community of participants and because there is no way to control how participants use and share the information discussed during group research settings. **Participants are asked to keep the names, work places, and any other identifying information of the other participants confidential.** This point will be stressed vocally to the participants as well throughout the research.

Pseudonyms will be used in the research for participants and for the schools the teachers are employed at. Participant checks will also be used before the final thesis is submitted so that participants are able to make sure there are no identifying factors included in the research that they do not wish to have published.

Any information that is provided may be subpoenaed by a court of law.

Right to Withdraw:

Participation in this study is voluntary and you need only answer questions or participate to the degree you are comfortable with. There is no guarantee that you will personally benefit from your involvement. The information that is shared will be held in strict confidence and discussed only with the research team. You may withdraw from the research project for any reason, at any time, without penalty of any sort. If you withdraw from the research project at any time, any data that you have contributed will be destroyed at your request.

The researcher will advise you if any new information is presented that might have a bearing on your decision to participate.

Questions:

If you have any questions or concerns, please feel free to contact the researcher in person or at the phone number or email address provided. This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board on June 10, 2010. **Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office (306-966-2084).**

Follow-Up or Debriefing:

Participants will be notified when the research thesis has been approved and will be provided with information regarding how they may access these results. The final research thesis is expected to be defended in August or December of 2011. If participants wish at that point to discuss the results of the research thesis, a debriefing meeting can be arranged.

Consent to Participate:

I, _____, have read and understood the description provided; I have had an opportunity to ask questions and my/our questions have been answered. I consent to participate in the research project, understanding that I may withdraw my consent at any time. A copy of this Consent Form has been given to me for my records.

_____	_____
(Name of Participant)	(Date)
_____	_____
(Signature of Participant)	(Signature of Researcher)

UNIVERSITY OF SASKATCHEWAN

CONSENT FORM:
Participants under the age of 18

You are invited to participate in a research project entitled, ***Examining how involvement in a participatory, action-based environmental education program affects families in Saskatoon.***

The choice of whether this information is presented orally or in writing is up to you, the participant. Please ask any questions or raise any concerns you might have with the researcher at any time.

Researcher:
Shannon Dyck
Master of Environment and Sustainability (MES), University of Saskatchewan
Phone: (306) 880-0373 Email: SLD492@mail.usask.ca

Research:

The goal of this research is to see whether a family environmental education program can help participants make environmentally responsible action in their daily lives. More specifically, if participants are asked to set action-based, environmentally responsible goals, to be done on their own or in a group (e.g., with family):

- Do participants change their actions?
- Which actions do they change/make and why?
- What encourages them to set and achieve their goals?
- Does working in a group help participants achieve their goals?
- What do participants find to be the biggest challenges or barriers to making certain changes?
- Do participants think they will be able to continue achieving their goals and/or set additional goals once the study is over?

Between September 2010 and January 2011, participants will be asked to participate in a 60-minute meeting to discuss the research goals and to address any concerns or questions participants may have; take pictures of what they feel they are doing that is environmentally "good" and environmentally "bad" (NOTE: these photographs will be used as a way for participants to personally connect to their actions and/or inactions so that they may reflect on them. **Participants are <u>not</u> to take photographs of identifiable people or places**); set environmentally responsible action goals that can be done on their own or in a group (e.g., with family) and work towards achieving those goals; participate in three 3-hour focus groups conducted with their family and other families; participate in two 90-minute family interviews, one before and one after the focus groups; and keep a diary of the environmental actions they try to do and/or achieve. Focus groups and interviews will be recorded; however, you may ask the researcher to turn off the recording device at any time.

Participation in this research is not part of your regular class work, your extra-curricular activities, medical treatment, etc., and is an optional activity. You may withdraw or stop participating at any time, for any reason, and this will not cause anyone to be upset or angry, and will not result in any type of penalty.

Whatever you do or say will not be shared with other adults, children, parents, or teachers in ways where you could be identified. You will be given a different name in the research paper so no one will be able to identify you when they read it. You will be allowed to review what is written in the research and if you are not comfortable with any of the information to be shared, you are to tell the researcher so that the information does not get used. **You are also expected to keep the names, work places, and any personal information about other participants private.**

The research might be communicated in journals, books, at conferences or meetings, to environmental organizations, to government, to teachers, to the school board, in newspapers, on the Internet, or through community meetings or presentations.

Potential Benefits:

There are many potential benefits to involvement. You might learn about environmental issues and solutions; learn to question and think deeply about why you do certain day-to-day activities; develop stronger family relationships; develop community partnerships and friendships; and find opportunities to get involved in environmental activities and solutions. This research may also lead to a healthier community and environment. Note: these benefits are not guaranteed.

Potential Risks:

Potential risks could include: disagreement between you and your family members or between you and other participants; stress due to added responsibilities or due to trying something new; being asked to do something you don't want to do; loss of privacy if another participant tells someone else what you said or did. However, this research is not meant to put participants in situations that may be potentially harmful or damaging. **All actions you take should be decided upon by you and your family and are done at your own risk.** Participation in this study is voluntary and you need only answer questions or participate to the degree you are comfortable with.

NOTE: Participants will be removed from this study if their behaviour is seen as potentially harmful to themselves and others, or if they try to force other participants to act in ways against their own choosing. If a participant's involvement in the study is discontinued, whether decided upon by the researcher or the participant, the participant's data will be deleted from the research and destroyed.

If participation in this research results in family issues, please contact Family Services Saskatoon (306-244-0127) or Catholic Family Services (306-244-7773) for counseling. Or, if a mediator is required between family members or other participants, please visit Conflict Resolution Saskatchewan (www.conflictresolutionsk.ca) or contact Saskatoon Community Mediation Services (306-244-0440) to set up a conflict resolution session. The cost of any research related counseling or mediation service will be paid by the researcher (receipts are required). If you have any further questions regarding this, please ask the researcher.

Questions:
If you have any questions or concerns, please feel free to contact the researcher in person or at the phone number or email address provided. This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board on June 10, 2010. **If you have questions regarding your rights as a participant, please contact the Ethics Office (306-966-2084).**

Consent to Participate:

I, _____, have read the consent form (or have had the consent form read to me) and understand it. I have had an opportunity to ask questions and my questions have been answered. I consent to participate in the research project, understanding that I may withdraw my consent at any time. A copy of this Consent Form has been given to me for my records.

_____	_____
(Name of Participant)	(Date)
_____	_____
(Signature of Participant)	(Signature of Researcher)

UNIVERSITY OF SASKATCHEWAN

CONSENT FORM:
Youth under the age of 18

You are invited to take part in a research project called, ***Examining how involvement in a participatory, action-based environmental education program affects families in Saskatoon.***

You have the choice of reading this form or having it read to you. If you have any questions about this form, please ask the researcher.

Researcher:
Shannon Dyck
Master of Environment and Sustainability (MES), University of Saskatchewan
Phone: (306) 880-0373 Email: SLD492@mail.usask.ca

Research:
The goal of this research is to see if you and your family can do actions day to day that are more environmentally friendly. The environmentally friendly actions that you do are up to you and your family. The researcher will see:

- if you and your family change your actions
- what actions you and your family change and why
- what helps you and your family do more environmentally friendly actions
- and what makes it hard to do environmentally friendly actions

Between September 2010 and January 2011, you and your family will be asked to take part in 6 meetings to talk about these things. These meetings will be tape recorded, but you may ask the researcher to stop tape recording at any time. 3 of these meeting will be just with you, your family and the researcher. 3 of these meetings will be with you, your family, the researcher and other families. You and your family will also be asked to take pictures of things you think you are doing day to day that are environmentally friendly and are not environmentally friendly. You and your family are <u>not</u> to take photographs of people or of buildings. You will also be asked to write in a dairy about what environmentally friendly actions you do or try to do. If you need help with this, please ask a person in your family for help.

Taking part in this research is not part of your regular class work, school activities, day care, medical treatment, or team activities. Taking part in this research is optional and you may stop taking part at any time, for any reason, and this will not cause anyone to be upset or angry.

Whatever you do or say will not be shared with your friends, other children, others parents and adults, or your teachers. You will be given a different name in the research paper so no one will know who you are. You will be allowed to read, or have someone read to you, what is in the research paper. If there is something that you said or did that you don't want in the research paper, you should tell the researcher so that it is not put in the research paper.

You cannot tell other people, not even your friends and teachers, about the names, work places, schools, and ages of the other people taking part in the research. Everyone taking part in the research has been asked to not tell anyone else your name, your school, or your age.

If you take part in this research, you might:

- get to spend more time with your family
- have fun taking part in environmentally friendly action
- get to talk about what you think is good for the environment
- make friends with other people at the meetings
- learn more about what you can do day to day that is more environmentally friendly
- and make the environment healthier.

Although many of these things might happen, they might not happen.

If you take part in this research, you might also:

- feel mad because you might not agree with others in your family or other people at the meetings
- have to spend time doing things that you do not think are fun
- and be asked to do things you do not want to do.

Although some of these things might happen, they might not happen.

You should not take part in anything you think is harmful or dangerous, even if someone asks you to. You do not need to answer questions you do not want to answer or questions you do not know the answer to. If you do something that might harm or be dangerous to yourself or others, or if you try to force someone to do something they do not want to do, you will have to stop taking part in this research.

Questions:

If you have any questions about the research or about this form, ask the researcher at any time.

Taking part in this research:

This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board on June 10, 2010. **If you have any questions about your rights as someone taking part in this research, please call or have your parent(s)/guardian call the University of Saskatchewan Ethics Office (306-966-2084).**

I, _____,

(print your first & last name)

have read this form or have had this form read to me and I understand it. The questions I asked about this form and the research have been answered. I want to take part in this research project and understand that I can stop taking part at any time. A copy of this form has been given to me to keep.

_____	_____
(Name of Participant)	(Date)
_____	_____
(Signature of Participant)	(Signature of Researcher)

UNIVERSITY OF SASKATCHEWAN

PARENTAL CONSENT FORM

Your child is invited to participate in a research project entitled, ***Examining how involvement in a participatory, action-based environmental education program affects families in Saskatoon.*** As a parent/guardian, the following information applies to your child.

Please read this form carefully and raise any questions or concerns you have with the researcher.

Researcher(s):
Shannon Dyck
Master of Environment and Sustainability (MES), University of Saskatchewan
Phone: (306) 880-0373 Email: SLD492@mail.usask.ca

Purpose and Procedure:

The main goal of this research is to examine whether involvement in a participatory, action-based, family environmental education program leads to the production of environmentally responsible action on the part of participants that is effective, desirable, and maintainable in participants' daily lives. More specifically, if participants are asked to set action-based, environmentally responsible goals, both individual and shared, with the support of family and community members:

- Do they change their actions?
- Which actions do they change/make and why?
- What encourages them to set and achieve their goals?
- Does the collective context affect participants' abilities and motivation in ways that allow them to undertake and sustain action?
- What do participants find to be the biggest challenges or barriers to making certain changes?
- What role does the previous knowledge and experiences of participants play in their actions, motivations, goals, achievements, and barriers they set and experience?
- Do participants think they will be able to maintain their goals and/or set additional goals once the study is over?

Between September 2010 and January 2011, participants will be asked to participate in a 60-minute initial meeting to discuss the research objectives and to address any concerns/questions participants may have; take pictures of what they feel they are doing that is environmentally "good" and environmentally "bad" (NOTE: these photographs will be used as a way for participants to personally connect to their actions and/or inactions so that they may reflect on them. **Participants are <u>not</u> to take photographs of identifiable people or places**); set environmentally responsible action goals that can be done individually and/or collectively and work towards achieving those goals; participate in three 3-hour focus groups conducted with the selected families; participate in two 90-minute, semi-structured family interviews, one before

and one after the focus groups (unless the family would prefer to answers these questions in a written form); and keep track of the environmental actions they attempt to do and/or achieve in an action diary. Your child will only be expected to participate to the best of their abilities. They may also require your help throughout the process (e.g., taking pictures, answering questions, writing in their action diary, etc.).

Potential Benefits:

Participants may acquire an enriched understanding of environmental issues and solutions; the ability to think critically about their day-to-day choices; stronger family relationships; community partnerships and friendships; an enhanced ability to communicate about environmental issues and solutions; and new opportunities to get involved in environmental activities. Furthermore, this research may contribute to the creation of more vibrant and sustainable communities, as well as a healthier environment. Note: these benefits are not guaranteed.

Potential Risks:

Participants may experience tension and/or disagreement between family members or other participants; emotional distress due to added responsibilities; added stress due to trying new things; and/or loss of anonymity due to participation in group settings. However, this research is meant to encourage, motivate and challenge participants to make environmental changes in their lives, not to place participants in situations that may be potentially harmful or damaging. **All actions taken should be decided upon by the participant and their family and are done at the participant's own risk.**

NOTE: Participants will be removed from this study if their behaviour is seen as potentially harmful to themselves and others, or if they try to force other participants to act in ways against their own choosing. If a participant's involvement in the study is discontinued, whether decided upon by the researcher or the participant, the participant's data will be deleted from the research and destroyed.

If participation in this research results in family issues, please contact Family Services Saskatoon (306-244-0127) or Catholic Family Services (306-244-7773) for counseling. Or, if a mediator is required between family members or other participants, please visit Conflict Resolution Saskatchewan (www.conflictresolutionsk.ca) or contact Saskatoon Community Mediation Services (306-244-0440) to set up a conflict resolution session. The cost of any research related counseling or mediation service will be paid by the researcher (receipts are required). If you have any further questions regarding mitigating services and strategies, please ask the researcher.

Research Data:

During the interview and focus group process, a recoding device will be used to gather all data efficiently (**NOTE: participants may request at any time that the recording device be turned off**). Data will be taken from the transcribed recordings and notes taken during interviews and focus groups. Information recorded in the participants' action diaries and themes presented in participants' photographs will also be used. Significant themes in the data and data

relevant to the research study objectives will be used in the research analysis. The research will include direct quotations to enhance the summaries of the findings.

Both informal and formal participant checks will be made. For example, after interviews and focus groups, the researcher will repeat key points that emerged in the dialogue and participants will be given the opportunity to clarify any of the points they had made. Formal checks will be made by having participants evaluate the legitimacy of the information taken from interviews, focus groups, and action diaries. If your child is unable to evaluate the legitimacy of the information, a parent or guardian may sign a transcript release on their behalf. Academic peer debriefing will also take place.

Research findings may be communicated in academic journals, during academic conferences, to local environmental organizations, to government, to teachers, to the school board, to curriculum developers, in local newspapers, on the Internet, or through community forums or presentations.

The data will be stored by Marcia McKenzie, the researcher's supervisor, for a period of no less than 5 years in a locked cabinet at the University of Saskatchewan, after which time the data will be destroyed. Photos and action diaries will be returned to participants after being analyzed. During the stage of active research, the data will be stored by Shannon Dyck in a locked filing cabinet in a home office.

Confidentiality:

Due to the participatory nature of this study, some loss of confidentiality may occur due to the small community of participants and because there is no way to control how participants use and share the information discussed during group research settings. Participants are asked to keep the names, work places, and any other identifying information of the other participants confidential. This point will be stressed vocally to the participants as well throughout the research.

Pseudonyms will be used in the research to protect participants' identities. Participant checks will also be used before the final thesis is submitted so that participants are able to make sure there are no identifying factors included in the research that they do not wish to have published. If your child is unable to do a participant check, a parent or guardian will be asked to evaluate the research on their behalf.

Any information that is provided may be subpoenaed by a court of law.

Right to Withdraw:

Participation in this study is voluntary and your child need only answer questions or participate to the degree they are comfortable with. There is no guarantee that they will personally benefit from their involvement. The information that is shared will be held in strict confidence and discussed only with the research team. Your child may withdraw from the research project for any reason, at any time, without penalty of any sort. Your may withdraw your child from the research project for any reason, at any time, without penalty of any sort. If withdrawn from the research project, any data that your child has contributed will be destroyed at your request.

The researcher will advise you if any new information is presented that might have a bearing on your child's decision to participate.

Questions:
If you have any questions or concerns, please feel free to contact the researcher in person or at the phone number or email address provided. This research project has been approved on ethical grounds by the University of Saskatchewan Behavioural Research Ethics Board on June 10, 2010. **Any questions regarding your child's rights as a participant may be addressed to that committee through the Ethics Office (966-2084).**

Follow-Up or Debriefing:
Participants will be notified when the research thesis has been approved and will be provided with information regarding how they may access these results. The final research thesis is expected to be defended sometime between August and December of 2011. If participants wish at that point to discuss the results of the research thesis, a debriefing meeting can be arranged.

Consent to Participate:

I/we, _____, have read and understood the description provided and recognize that the above information applies to my/our child. I/we have had an opportunity to ask questions and my/our questions have been answered. I/we give parental/guardian consent for my/our child to participate in the research project, understanding that consent may be withdrawn at any time. A copy of this Consent Form has been given to me/us for my/our records.

_____ _____
(Name of child) (Date)

_____ _____
(Name of parent/guardian) (Name of parent/guardian)

_____ _____
(Signature of parent/guardian) (Signature of parent/guardian)

_____
(Signature of researcher)

Appendix E: Recruitment Poster

Now is your chance

to incorporate ENVIRONMENTAL ACTION into your day-to-day lives!

Teachers and their families* are being provided with the opportunity to participate in an action-based environmental education program.

This program will enable teachers to explore and engage in environmentally responsible actions in their daily lives and achieve new life practices with the support of their families and other families in Saskatoon.

Participants will be rewarded for their involvement and reimbursed for environmental resources and other costs incurred.

*The term "family" refers to a collective of individuals living in a household who identify themselves as a family. Voluntary involvement from the whole family is necessary.
This 5 month research project will start in September, 2010.

For more information, please contact Shannon Dyck
S L D 4 9 2 @ M A I L . U S A S K . C A or (306) 880-0373

This program is the focus of a Master's research study being offered through the School of Environment and Sustainability, University of Saskatchewan

Appendix F: Interview Protocol

First interview

1. How 'sustainable' do you think you were as a family before this research started? How did you feel about your lifestyle (e.g., were you happy with how you were living)?
   How 'sustainable' do you think you are now? How do you feel about your lifestyle now (e.g., has anything changed since you've entered this research)?
2. Do you feel you were making environmentally responsible choices before this research started? If so, what types of actions were you involved in?
   Has anything changed since you've entered the research (e.g., more actions, types of actions, amount of effort put into certain actions)?
3. Of the actions you were doing before the research started, why were you doing these things?
   Have your reasons changed since you've entered the research?
4. Now and in the past, what or who has supported or helped you participate in environmentally responsible actions?
   Now and in the past, have you experienced barriers or believed there to be barriers to making environmentally responsible choices? If so, what or who contributed to these constraints?
5. Please go over some of your photovoice pictures. What do your photos represent?
   Were all of you pretty much in agreement when you were taking these photos? Or did you have different ideas of what your family was doing well and not so well environmentally?
   Where were the majority of your photos taken?
6. Please go over what the process was like when you were taking photos: How did you choose which photos to take? Were they taken over a series of days, over a couple weeks, in a couple of hours…? Was there one person who acted as the primary photographer? Did you talk about these photos as a family while you were taking the photos or after taking them?
   How much time do you think you spent on the photo project in total? Did you take individual photos as well?
   6.* Did you include anyone else when you were taking these photos? Did you talk about the photos or the process of taking these photos with family or friends during/afterwards?

7. What did you learn while doing the photo project?
8. Did you find it useful in identifying how your family is (or maybe, is not) participating in environmental change/action?

    8.* What do you think the experience would have been like if your family was still living with you? Do you think you would have agreed on what photos to take? Do you think the photos would have been different? Do you think you would have learned different things by doing this photo project with family?
9. In general, how did you find the photo project? Is there anything else you'd like to say about your experience?
10. What are the family environmental goals that you set? How/why did you decide on these goals? Did you set individual goals as well? Did the photo project play a part in this goal setting process?
11. How did you hear about this project?
12. Why did you choose to enter this research?
13. What do you hope to accomplish or get out of this research process?

14.** What background or experience do you have in environmental learning or actions? (e.g., have you learned about the environment in school, are you involved in environmental organizations, did you do family/individual environmental activities before this research?)

15.** What (if any) environmental issues concern you? Do you know of anything being done to help solve these issues? How are you helping solve these issues? Do your photos and/or goals reflect these concerns?

* Modifications for the individual participant, Josh Woods.

** There was not enough time to discuss questions 14 and 15 in the first interview except with the individual participant, Josh Woods.

Last interview

1. What role(s) do you feel you played in affecting other household members' environmental actions (e.g., did you initiate action, think of new actions, etc.)?

    1.* What role(s), if any, do you feel you played in affecting other people's environmental actions throughout this research (e.g., did you initiate action, help others, etc.)?

2. What things did you do individually and as a group?
3. Did household members monitor each other's environmental actions? If so, how did this affect individual and collective actions?
   Did self-monitoring affect your actions?
4. What did family members give to and get from each other during the study (e.g., support, encouragement, help, information, insights…)? What do you think it would have been like if you had tried to go through this process without getting these things from your family (as mentioned above)?
   4.* What do you think family members would have given to you and gotten from you during the study had you been living with family (e.g., support, encouragement, help, information, insights…)? How do you think these things would have changed the process or outcome of this research?
5. Anything else to mention regarding how household interactions affected, for example, your actions, goals, or how you thought about sustainability?
   5.* Anything else to mention regarding how household interactions might have affected, for example, your actions, goals, or how you thought about sustainability? Any other reflections on your experiences of going through this research while living alone?
6. Have others outside of the household affected what goals you made and/or achieved, or how you thought about sustainability?
7. Any other things/people that helped you achieve your goals?
8. How sustainable do you think your lifestyle is (e.g., compared to when I asked during the first interview)?
9. Have you changed throughout this research study? If so, how? Are these changes linked to the research (e.g., changes in actions, disposition, etc.)?
10. Do you think you will be able to maintain your goals once the study is over? Why or why not?
11. Do you plan on making further changes once the research process is over? Why or why not? And is this linked to the research or not?
12. Do you want to or think you will stay in touch with the other participants? Why or why not?
13. How do you think you're doing in terms of accomplishing the goals you set out for yourself? Individually? Collectively?

What are/were your biggest successes?

What were/are the biggest challenges you came across?

14. Have you made any new goals that I don't know about? If so, what are they?
15. Discuss how you felt about the program: Is there anything that could have been done differently? What could be added/improved/changed? What did you find most/least valuable? Is there anything you wish you or I had done differently? If this type of service was offered to the public, to other teachers, to other families, would you recommend it to others?)
16. How did you spend your resource money?
17. Why did you choose to spend your money on it?
18. How has or will it engage you in environmental learning and action?
19. Does everyone in the family participate?
20.*** What was the experience like participating with your relatives?

* Modifications for the individual participant, Josh Woods.

** There was not enough time to discuss questions 14 and 15 in the first interview, except with the individual participant, Josh Woods.

*** This question was only directed towards the Lakes and the Browns because their families were related. They were unaware of the others' participation upon entering the program.

Appendix G: Focus Group Protocol

Focus group ground rules

The facilitation "rules" (or guiding principles) that were developed for this research were based on a number of suggestions given by researchers. For example, Roberto Vargas (2008) believes that a facilitator should: explain their role as the facilitator, encourage feedback from every participant, aim for respectful communication, attempt to foster trust between participants, and use facilitation to cultivate problem-solving and solutions. Not only that, but McKenzie-Mohr & Smith (1999) feel that, as a facilitator, you should reassure participants, "that there are no right or wrong answers for the questions that you will be asking them and that what you are most interested in is their perceptions" (p. 27). Furthermore, as Jürgen Hagmann and Edward Chuma (2002) stress, facilitation is not about controlling the outcome, but leading the process. Therefore, with these words of advice in mind, the following points were presented to the participants during the study.

My role, as the facilitator and researcher, is to:
-Provide structure and guidance to the focus groups and conversations.
-Pose questions and topics for discussion.
-Listen and learn.

The guiding principles of the focus groups will be as follows:
-We want to create a safe space. We want to have a friendly conversation and try to ensure that everyone feels comfortable and respected.
-We all have answers and valuable knowledge to share with one another.
-We do not need to agree with everyone else here. However, we should remain respectful of people's differences.
-We will try to speak up, but avoid speaking for others. We will allow everyone to speak for themselves so they feel like their opinions, ideas, and feelings are correctly portrayed.
-We will try to avoid making generalizations about people and situations and, instead, try to be specific about what we mean.
-We will avoid speaking over others and will leave space for everyone to talk.

-We will listen and *really* try to understand each other.

-We will try to be as clear as possible so that everyone will be able to understand what we're saying.

-We will ask if we need something clarified.

-We understand that this is a confidential conversation. Therefore, names, workplaces, and personal information stays between us only.

-We will be respectful of time.

First focus group

Go over the Focus Group Ground Rules

Introductions

1. What is your name?
2. Say one thing you like to do outdoors.

Envisioning Exercise

1. What is your idea of an ideal future (what future do you want)?
2. What future do you want for your family? Is it the same as question 1?
3. What future do you want for other people? Is it the same as questions 1 and 2?
4. What future do you want for other species? Is it the same as questions 1, 2, and 3?
5. What does a good relationship with the earth look like? Is this it or do we need to add or subtract things from our list?
6. What do good relationships with other people look like? Is this it or do we need to add or subtract things from our list?
7. Does 'good for people' mean 'good for the rest of planet'?
8. Does 'good for the rest of planet' mean 'good for people'?

Breakout Discussions*

1. What does being environmentally responsible mean? What does sustainability mean?
2. What role does and can an individual play in forming a more sustainable world? What role can a family play? A community? Why are individuals', families' and communities' actions important? Who/what else could play a role in forming a more sustainable world?

3. Think in terms of sustainability: "Where are we? How did we get here? Where do we appear to be heading? Where do we want to go? How do we get there from here?" (Glasser, 2007, p. 35)

Food/Play Break

Action Debrief

1. What types of environmentally responsible actions were you doing before the research started?
2. What action goals have you made?
3. What actions have you started to do that you feel are environmentally responsible?
4. What/who influences your actions the most?
5. Have you looked through any of the action or informational resources provided to them? Or have you located any resources of your own?
6. Are there any stories anyone would like to share about any of their experiences? Or share what other actions they know of that they feel are environmentally responsible?

***** Divided into two groups: children and adults

Second focus group

Go over the Focus Group Ground Rules

Introductions

1. What is your name?
2. What is one of your favourite winter activities?

Photo Reflection (Each family was asked to bring 4 pictures from their photovoice to share with the group, 2 of which they felt were of 'good' environmental practices and 2 of which they felt were of 'bad' environmental practices)

1. What picture did you take?
2. Why did you take these pictures?
3. Why you feel the images depict an environmental 'good' or 'bad'? Did members of the family disagree on whether it was good or bad?

Food/Play Break

Breakout Discussions*****

1. What/who are the biggest environmental issues of today? What/who are the solutions? What/who is responsible for implementing these solutions?
2. Can global problems be solved locally? Can local problems be solved globally?
3. How do you think social differences (cultural, gender, economic circumstances, location, job, etc.) affect environmental decision-making?

Action Debrief

1. Have you set any new goals for yourselves? Or started doing any new actions?
2. What have been your biggest successes?
3. What have been your biggest challenges?
4. Who/what has helped you most with achieving your goals?
5. What resources have you been using that you find helpful?
6. Are there any questions anyone would like to throw out to the group?

***** Divided into three groups: children, women, and men

Third focus group

Greetings from the Director of the Core Neighbourhood Youth Coop

Introductions

1. What is your name?
2. Name one thing you did over your holidays.

Action Debrief

1. Are you still fulfilling your environmentally responsible goals and actions?
2. Have you set any new goals for yourselves (e.g., new years resolutions)?
3. Have there been any big successes or challenges since we've seen each other last?
4. Are there any questions people have for the group?
5. Does anyone have any more helpful resources they want to suggest?

Food Break

Breakout Discussions*

1. What have you learned throughout the research study?
2. What parts of the last few months have been the most positive (e.g., meaningful, useful, motivating) and the most negative (e.g., frustrating, difficult, upsetting)?

3. Do you think this experience would be valuable for others? If so, who? In the same format?

4. Any constructive criticism about the research, process, or experience?

Food/Play Break

"What's Next?"

1. What do you feel to be the main themes or issues arising from the research? (e.g., if you had to sum up what many people in this group have been doing or saying, or what issues arose frequently, what would you say?)

2. Did you accomplish what you had hoped to accomplish from this study?

3. What do you hope to accomplish or continue with once the research process is over? Have you made long-term or short-term goals?

4. How do you think you can help each other after the study is over?

* Divided into two groups: randomly selected

Appendix H: Journal Protocol

The following was given to the participants at the beginning of the study:

This is to be used as a general format for your personal action diary. Please attempt to keep track of your actions on a weekly basis and include other thoughts and reflections as you feel the need or as time permits. These are to be filled out privately by individual participants, unless help from another family member is required.

The richer the diaries, the richer the data. That said, you are only expected to write about that which you are comfortable sharing. Also, please indicate if there is certain information in your dairy you would *not* like included in the research. You will be given the opportunity to review all transcripts before publication; you may ask that certain information not be shared in the research at this time as well.

You will be asked to lend me your diary after the last interview. Diaries will be returned to you once analysis is complete. If you have any questions or concerns, please contact me at any time.

Example of an action diary:

-Actions I did:
-Actions I had thought about doing:
-Actions I tried to do:
-What prevented me from doing something I wanted to do?
-What was I pleased with?
-What challenged me?
-How has my family helped me?
-How have others helped me?
-How have I helped my family?
-How have I helped others?
-What role do I play in collective action goals? (doer, planner, learner, monitor, motivator, …)

-How have my previous experiences or beliefs prevented and/or allowed me to do or believe certain things?

-Consider the questions asked during the first interview. For example:

-Have I started thinking differently about anything or changing any of my actions? If so, what has changed?

-What am I most comfortable changing?

-What are the biggest challenges I've come across so far?

-Am I accomplishing any of the goals I set out for myself?

-What/who helps me achieve my goals?

-How sustainable is my lifestyle? Why do I think this?

-What kind of future do I want for myself? Others? The world?

-Were there questions I was unable to address during an interview or focus group that I would like to discuss or reflect on in my diary? Is there anything that came up in an interview or focus group that I would like to expand on?

-Other thoughts and reflections:

Appendix I: Action Resources

The following was given to the participants at the beginning of the study:

The following action resources discuss ways in which one can minimize their energy use and resource consumption, as well as support ethical purchasing. The resources also include a directory of the more environmentally mindful businesses and organizations in Saskatoon, as well as ways in which one can access environmental organizations in Saskatchewan. The action resources are from various sources (e.g., governmental resources, nongovernment organizations, power providers, blogs, and other how-to sources).

This research study welcomes friendly debate and discussion; therefore, what individual participants believe to be environmentally responsible practices and actions need not be agreed upon by all participants, nor should the action resources provided be seen as the only 'right' answers. The variety of information may help you make goals that are both environmentally responsible and flexible enough to be appropriate for you and your family. They are also meant to encourage you to critically think about what actions you are or are not doing in your day-to-day life.

If there are resources that you feel would help you achieve and set environmentally responsible goals that are not included below, you are also encouraged to use them. You are not required to read any of the following information, nor find other environmental resources on your own. The only requirement is that you think of a few environmental goals you would like to work towards and then attempt to achieve them.

Although some of these resources can be accessed freely through the Internet, some books might only be available through purchase. If you are interested in purchasing any of these resources, you may do this on your own (e.g., through Turning the Tide (525 11th Street East) or online at www.amazon.ca) or you may ask me to locate the resources for you.

Each family will be reimbursed up to a total of $500 for the purchase and/or rental of both Action Resources *and* Informational Resources (this money can also be used to purchase or rent environmental resources *not* included in the lists provided). Receipts are required.

Websites:

Sask Power (environmental actions) –
www.saskpower.com/eneraction/tools_and_advice/?linkid=power_saving_tips_and_tools

SaskEnergy (environmental actions) –
www.saskenergy.com/saving_energy/tips.asp

Environment Canada (environmental actions) –
www.ec.gc.ca/education/default.asp?lang=En&n=826B95C3-1

Natural Resources Canada (environmental actions) –
http://oee.nrcan.gc.ca/english/index.cfm?attr=16

PNM (environmental actions) –
www.pnm.com/save/energy_tips_all_year.htm and www.pnm.com/customers/99_ways.htm

Living Green at work (environmental actions) –
www.livinggreen.info/greening_business_workplace.htm

Vanessa Farquharson Blog (environmental actions and experiences) –
http://greenasathistle.com/green-listed/

One Million Acts of Green (environmental actions) –
http://green.cbc.ca/ActsList.aspx

Sask Eco Network (environmental organizations in Saskatoon) –
http://econet.sk.ca/about/membergroups.html

Sask Waste Reduction Council (where to recycle, how to compost, etc.) –
http://www.saskwastereduction.ca/

Chooseyournews ('Green' businesses in Saskatoon) –
http://chooseyournews.jimdo.com/environment/businesses-in-saskatoon/

Books:

Boyd, D. R. & Suzuki, D.T. (2008). *David Suzuki's Green Guide*. Canada: Greystone Books.

Deacon, G. (2008). *Green for Life*. Toronto, Canada: Penguin Group (Canada).

Farquharson, V. (2009). *Sleeping naked is green*. Canada: Houghton Mifflin Harcourt.

Hickman, G. & Hickman, S. (2002). *The Ecology Action Guide: Action for a sustainable future*. San Francisco, USA: Pearson Education Inc. and Benjamin Cummings.

Hill, G. & O'Neill, M. (2008). *Ready, Set, Green: Eight Weeks to modern eco-living*. USA: Random House.

National Geographic Society. (2008). *Green Guide: the complete reference for consuming wisely*. Washington, D.C., USA: National Geographic Ventures.

Sandbeck, E. (2008). *Green housekeeping*. NY, USA: Simon & Schuster.

Saskatchewan Environmental Society (2007). *Energy Awareness Training manual*. Canada: SES.

Stoyke, G. (2007). *The Carbon Buster's home energy handbook*. Canada: New Society Publisher.

Vasil, A. (2007). *Ecoholic: Your guide to the most environmentally friendly information, products and services in Canada*. Canada: Vintage Canada.

Appendix J: Informational Resources

The following was given to the participants at the beginning of the study:

The following informational resources discuss current environmental issues and human impacts. These sources range from scientific information to discussions surrounding environmental ethics to documentaries, all of which give a broad picture of environmental circumstances. Depending on participants' prior knowledge on environmental issues, some resources may prove more helpful or inviting than others. Like the action resources, the materials provided do not need to be utilized and are not meant to be seen as providing the only 'right' answers. These resources are meant to give you the opportunity to think about and discuss environmental issues and actions and may encourage you to critically think about what actions you are or are not doing in your day-to-day life. These resources may also increase your interest in certain areas, prompt you to seek further information about various topics, or clarify any questions you may have had.

If there are resources that you feel would help you learn about environmental topics and human impacts that are not included below, you are also encouraged to use them. You are not required to use any of the following information, nor find other environmental resources on your own.

Although some of these resources can be accessed freely through the Internet, some books and DVDs might only be available through purchase. If you are interested in purchasing any of these resources, you may do this on your own (e.g., through Turning the Tide (525 11th Street East) or online at www.amazon.ca) or you may ask me to locate the resources for you.

Each family will be reimbursed up to a total of $500 for the purchase and/or rental of both Informational Resources *and* Action Resources (this money can also be used to purchase or rent environmental resources *not* included in the lists provided). Receipts are required.

Books and websites:

Adger, W. N., Lorenzoni, I., O'Brien, K. L. (Eds.). (2009). *Adapting to Climate Change: Thresholds, Values, Governance*. Cambridge University Press.

Attfield, R. (2003*). Environmental ethics: An overview for the twenty-first century*. Cambridge: Polity Press.

Baird Callicott, J. & Frodeman, R. (Eds.). (2009). *Encyclopedia of environmental ethics and philosophy.* Farmington Hills, MI: Macmillan Reference USA/Gale Cengage Learning.

Canadian Journal of Environmental Education – http://cjee.lakeheadu.ca

Dilworth, C. (2009). *Too smart for our own good: The ecological predicament of humankind*. Cambridge University Press.

Goudie, A. (2000). *The human impact on the natural environment - 5 Edition*. The MIT Press.

Goudie, A. (2005). *The human impact on the natural environment: Past, present, and future - 6 edition*. Wiley-Blackwell.

Green teacher magazine – www.greenteacher.com

The Intergovernmental Panel on Climate Change – www.ipcc.ch/publications_and_data/publications_and_data.htm

King, Parkinson, Partington, Williams (Eds.). (2007). *Our changing planet: The view from space*. Cambridge University Press.

Millennium Ecosystem Assessment (2005). *Ecosystems and human well-being: Synthesis*. Island Press. Can be retrieved from www.millenniumassessment.org/en/index.aspx

Millennium Ecosystem Assessment (2005). *Ecosystems and human well-being: Current state and trends: Findings of the condition and trends working group*. Island Press. Can be retrieved from www.millenniumassessment.org/en/index.aspx

Millennium Ecosystem Assessment (2003). *Ecosystems and human well-being: A framework for assessment.* Island Press. Can be retrieved from www.millenniumassessment.org/en/index.aspx

Naeem. Bunker, Hector, Loreau, Perrings (Eds.). (2009). *Biodiversity, ecosystem functioning, and human wellbeing: An ecological and economic perspective*. Oxford University Press.

Schlesinger, Kheshgi, Smith, de la Chesnaye, Reilly, Wilson, Kolstad (Eds.). (2007). *Human-induced climate change: An interdisciplinary assessment*. Cambridge University Press.

Schmidtz, D. & Willott, E. (Eds.). (2002). *Environmental ethics: What really matters, what really works.* New York: Oxford University Press.

Traer, R. (2009). *Doing environmental ethics.* Boulder, CO: Westview Press.

Turner, C. (2008). *Geography of hope.* Random House Canada.

Documentaries:

Earth

The End of Suburbia

Food Inc.

Garbage! The revolution starts at home

Home (can be accessed online at www.home-2009.com/us/index.html)

In Transition (can be accessed online at http://transitionculture.org/in-transition/)

No Impact Man

Planet Earth

The Story of Stuff – www.thestoryofstuff.com

Children's resources:

Baker, Jeannie. (2004). *Home*.

Oldland. (2009). *Big Bear Hug*.

Peet, B. (1970). *Wump World*.

Seuss, Dr. (1971). *The Lorax*.

Animal Atlas (DVD). http://animalatlas.tv/dvds.html

www.childsake.com

www.childrenoftheearth.org/Navy%20Pages/recommended-books-children-environment.htm

Footprint calculators:

www.myfootprint.org/en/about_the_quiz/what_it_measures/

www.royalsaskatchewanmuseum.ca/gallery/life_sciences/footprint_mx_2005.swf

www.footprintnetwork.org/en/index.php/GFN/page/personal_footprint

Appendix K: Participants' Previous Action

Household	Actions done prior to the study
Frost -Laura -Mark -Johanna -Gale -Nicholas -John	Reduce (e.g., paper use, consumption, packaging); Reuse (e.g., cloth napkins, school supplies, buy used items); Recycle (curbside) Transportation (e.g., seasonal cycling, occasional carpooling and busing) Water conservation (e.g., low flow toilet, conserve dish water) Energy* (e.g., no AC, lower thermostat, low energy bulbs, sealed windows, attic insulation, high efficiency furnace) Food (e.g., fresh, homemade) Garden (e.g., backyard garden) Community involvement (Johanna & Laura) Other (e.g., house plants, occasionally support local, reduced use of technology)
Lake -Jason -Jackie -Mia -Miles	Reduce (e.g., paper use, consumption, packaging); Reuse (e.g., bags, containers, buy used items); Recycle (curbside) Transportation (e.g., seasonal cycling, seasonal walking, occasional busing) Water conservation (e.g., share bath water, reuse household water in garden) Energy (e.g., no AC, lower thermostat, low energy bulbs, reduced appliance use) Food (e.g., fresh, organic, homemade) Garden (e.g., backyard garden); Compost (outdoor and vermicomposting) Advocate for sustainable practices at work or school (Jason & Miles, sometimes Jackie & Mia) Community involvement (Jason) Other (e.g., house plants, green cleaning and personal hygiene products, support local, less materialistic gift giving)
Brown -Winn -Max -Lily -Anna	Reduce (e.g., paper use, consumption, packaging); Reuse (e.g., bags, containers, buy used items, cloth diapers); Recycle (drop-off depots) Transportation (e.g., seasonal cycling, seasonal walking (Winn year-round), occasional carpooling and busing) Water conservation (e.g., water with rainbarrels) Energy (e.g., no AC, lower thermostat, low energy bulbs, reduced appliance use, powerbars, heat basement only as needed) Food (e.g., produce from garden, fresh, organic, homemade, free-run, fair-trade, vegetarian (Max, Lily, & Anna), preserve own food)

Household	Actions done prior to the study
Brown -Winn -Max -Lily -Anna	Garden (e.g., organic backyard and front yard gardening, indoor gardening, greenhouse); Compost (outdoors) Advocate for sustainable practices at work or school (Winn sometimes) Community involvement (Max, Lily, & Anna) Other (e.g., house plants, green cleaning products, DIY repairs and renovations, less materialistic gift giving, reduced use of technology)
Rose -Norah -Scott	Reduce; Reuse (e.g., bags, containers); Recycle (curbside) Transportation (e.g., seasonal cycling, high efficiency vehicle) Energy (e.g., no AC, lights off) Advocate for sustainable practices at work or school (Norah) Other (e.g., house plants)
Woods -Josh	Reduce; Reuse (e.g., buy used items); Recycle (curbside) Transportation (e.g., year-round cycling and walking, occasional car sharing) Energy* (e.g., reduced appliance use, household insulation, solar air heater, solar water heater, drain water heat recovery) Food (e.g., fresh, homemade, preserves food) Garden (e.g., indoor gardening, schoolyard gardening); Compost (outdoor and vermicomposting) Advocate for sustainable practices at work or school Other (e.g., support local, DIY repairs and renovations, less materialistic gift giving)

*These households had gone through the EnerGuide program prior to the study (http://www.saskenergy.com/saving_energy/energuide.asp).

Appendix L: Photovoice

Things we're doing well…

Frosts: Using Compact Fluorescent Lightbulbs

Lakes: Vermicomposting

Browns: Spending time outdoors

Things we're not doing so well…

Frosts: Taking long showers

Lakes: Using/buying too much plastic

Browns: Driving more than we'd like to

Things we're doing well…

Roses: Curbside recycling

Woods: Winter cycling

Things we're not doing so well…

Roses: Throwing organics in the garbage

Woods: First composting toilet attempt failed